THE ATHENÆUM

Journal of English and Foreign Literature, Science, and the Fine Arts.

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For the convenience of Subscribers residing in remote places, the weekly numbers are reissued in Monthly Parts, stitched in a wrapper, and forwarded with the Magazines.—Subscriptions for the Stamped Edition for the Continent, for not less than Three Months, and in advance, are received by M. BAUDRY, 3, Quai Malaquais, Paris, or at the Publishing Office, 14, Wellington-street North, Strand, London. For France and other Countries not requiring the postage to be paid in London, 28fr. or 1l. 2s. the year. To other Countries, the postage in addition. [JAMES HOLMES, TOOK'S COURT, CHANCERY LANE.

THE QUEEN'S UNIVERSITY IN IRELAND.

EXAMINATION FOR MEDICAL DEGREES.

NOTICE.

Certificates of Medical Education from all Universities and Chartered Institutions in the United Kingdom will be received by the Senate of the Queen's University.

All other Institutions for Medical Education desiring to have their Certificates recognized by the Senate are required to make application to the Secretary on or before the 9th of August, 1851,—stating their means of affording education in the several branches proposed to be recognized, and, in the case of Hospitals, stating the number of beds contained, and the number of Clinical Lectures delivered each Session.

Applications to be addressed to

ROBERT BALL, LL.D. Secretary,
Queen's University in Ireland,
Castle, Dublin.

SOCIETY OF ARTS, Adelphi, London.—PHILOSOPHICAL TREATISE on the various Departments of the GREAT EXHIBITION, which shall set forth the peculiar advantage to be derived from each by the Arts, Manufactures, and Commerce of the Country.

The Council offer, in the name of the Society, the large MEDAL and 25l. for the best, and the Society's small Medal and 10l. for the second best, Treatise on the Objects Exhibited in the Section of Raw Materials and Produce.

A large Medal and 25l. for the best, and a small Medal and 10l. for the second best, Treatise on the Objects Exhibited in the Section of Machinery.

A large Medal and 25l. for the best, and a small Medal and 10l. for the second best, Treatise on the Objects Exhibited in the Section of Manufactures.

A large Medal and 25l. for the best, and a small Medal and 10l. for the second best, Treatise on the Objects Exhibited in the Section of Fine Arts.

Each treatise must occupy, as nearly as possible, eighty pages of the size of the Bridgewater Treatises.

The Society will also award its large Medal and 25 guineas for the best General Treatise upon the Exhibition, treated commercially, politically, and statistically, and small medals for the best Treatises on Special or Class of Objects Exhibited.

The successful Treatises are to be the property of the Society; and should the Council see fit, they will cause the same to be printed and published, awarding to the author the nett amount of any profit which may arise from the publication after the payment of the expenses.

The Competing Treatises are to be written on foolscap paper, signed with a motto in the usual manner, and delivered at the Society's House on or before the THIRTIETH OF NOVEMBER, 1851, addressed to George Grove, Esq., Secretary, from whom additional particulars may be learned.

By order of the Council,
GEORGE GROVE, Sec.

Adelphi, June 1, 1851.

ARUNDEL SOCIETY, or SOCIETY FOR PROMOTING THE KNOWLEDGE OF ART.

Council for 1851-2.

The Hon. Francis Charteris, M.P.	The Lord Lindsay
The Lord Colborne	Charles Newton, Esq.
C. W. Cope, Esq., R.A.	Edmund Oldfield, Esq.
The Lord De Mauley	Samuel Rogers, Esq.
Major-General C. R. Fox	John Ruskin, Esq.
Sir J. S. Hippisley, Bart.	William Smith, Esq.
H. Bellenden Ker, Esq.	Tom Taylor, Esq.
The Marquis of Lansdowne	G. F. Watts, Esq.

Treasurer—William Smith, Esq.

Honorary Secretary—G. Aubrey Bezzi, Esq.

The Publications for the year ending April 30, 1851, consisting of four Engravings after Frescoes of Fra Giovanni Angelico in the Vatican, are now ready for distribution. They will be delivered to Members who have paid their Annual Subscription, at any address within four miles of Charing Cross, or will be forwarded to the care of any Agent of the Society in the country, as directions are given to the Secretary. Orders for Casts of the 'Theseus,' and Prospectuses of the Works proposed for publication, may be obtained from Mr. MACKAY, at Messrs. P. & D. COLNAGHI'S.

(By order of the Council,)
Office of the Arundel Society, 13 & 14, Pall Mall East. G. AUBREY BEZZI, Hon. Sec.

HORTICULTURAL SOCIETY of LONDON.—HIS GRACE THE DUKE OF DEVONSHIRE, President of the Horticultural Society, has kindly directed the Grounds of Chiswick House to be opened for the reception of the Visitors to the Society's Gardens at the NEXT EXHIBITION, on SATURDAY, the 19th of JULY. Tickets are issued to the orders of Fellows of the Society only, at this Office, price 5s.; or at the Garden, in the afternoon of the 19th of July, at 7s. 6d. each, but then also only to orders signed by Fellows of the Society. But respectable strangers, or residents in the country, who will forward their addresses in writing to the Vice-Secretary, 21, Regent-street, on or before Thursday, the 17th of July, may obtain from that Office an authority to procure Tickets on this occasion. No official orders for Tickets will be issued after that day.

N.B.—No Tickets will be issued in Regent-street on the day of Exhibition.

Messieurs les étrangers qui desireront se procurer des billets d'admission pourront en obtenir des mandats en s'addressant à leur Ambassade ou à leur Consulat.

PRIVILEGE OF FELLOWS.—Each Fellow of the Society has five personal admission to these Exhibitions without a ticket. He or she may also personally introduce a friend with an Admission Ticket at half-past Twelve, at Gate No. 4, in the Duke of Devonshire's road; or, if unable to attend personally, a wife, brother, son, daughter, or sister, if resident in the family, may represent the Fellow, if furnished with an admission Ticket on which the signature of the Fellow is inscribed.

21, Regent-street, London.

CHEMICAL and AGRICULTURAL SCHOOL, 38, KENNINGTON-LANE, LONDON.—The SCIENTIFIC DEPARTMENT under the Direction of J. C. NESBIT, F.C.S. F.G.S., one of the Principals.

Instructions are given in all those branches of Chemistry which relate to the Cultivation of the Soil, and the making of ARTIFICIAL MANURES. Mineral analysis taught in all its branches. Analyses performed as usual, on moderate terms.

MR. CHARLES L. BLOXAM (First Senior Assistant to the Royal College of Chemistry, London), will RECEIVE PUPILS in ANALYTICAL and GENERAL CHEMISTRY, as usual, during the Long Vacation (August and September), at his Laboratory, 28, Duke-street, Grosvenor-square.

HANWELL COLLEGE & PREPARATORY SCHOOL (for Boarders only) will RE-OPEN on MONDAY, the 21st instant.—Prospectuses, with full particulars, may be had on application to the Secretary,

J. A. EMERTON, D.D., Principal.

A LADY, Member of the Established Church, is desirous of a RE-ENGAGEMENT as RESIDENT GOVERNESS. Her qualifications are English in all its branches, Music and Drawing, with the French and Italian Languages. F. E. C. has been accustomed to instruct either elder or younger Pupils without the assistance of Masters. Unexceptionable references can be given.—Address, pre-paid, F. E. C., Mr. MANN, Bookseller, 39, Cornhill, London.

EDUCATION.—HOLYWYL HOUSE, Stamford-hill, Middlesex.—At this School, which has been established upwards of twenty years, YOUNG GENTLEMEN are thoroughly instructed in all that pertains to a sound commercial education, together with Latin, French, Mathematics, Drawing, and the Elements of Chemistry and Natural Philosophy. The situation is healthy and pleasant, the domestic accommodations of a superior character, and the treatment liberal and kind. Terms moderate. Recommences Monday, July 14.

COLLEGIATE SCHOOL, SHEFFIELD.—WANTED, after the present vacation, an ASSISTANT MASTER. He must be a good Penman and Arithmetician, and able to teach the rudiments of Latin, with Algebra and Euclid. One who has passed the Examinations of the College of Preceptors will be preferred. Salary, 40l. (or upwards), with board and lodging.—Apply to Rev. G. A. Jacob, 4, Britannia-terrace, Rhyl.

LATIN and GREEK.—Mr. HALL, the Author of 'The Principal Roots of the Greek Language simplified by a display of their incorporation into the English Tongue,' RECEIVES ADULT PUPILS or YOUTH for instruction on a most PHILOSOPHIC and yet RAPID course, which the experience of more than a quarter of a century has fully established by the best of all possible proof, the practical results to pupils themselves, amongst whom are some of the nobility and many others now eminent in the learned professions. The usual time required is about THREE MONTHS for Latin or Greek, if previously acquainted with English Grammar, and FOUR MONTHS if not. Terms—Two Lessons per week, 3 guineas per month; each month payable in advance. Address Mr. HALL, 5, Northumberland-street, Charing-cross.

N.B.—The study of LOGIC is also peculiarly simplified. Families attended.

A GRADUATE of OXFORD, a B.A. in October, will begind to hear of a TUTORSHIP in a GENTLEMAN'S FAMILY, to teach the Classics, the lower branches of Mathematics and Drawing. Address, post paid, to C., at Mr. Leathwait's, 1, Pope's-head-alley, Cornhill.

LECTURER WANTED.—The LECTURESHIP of NATURAL PHILOSOPHY in the GLASGOW MECHANICS' INSTITUTION being Vacant, applications for the situation will be received by the Secretary on or before the 28th of July, 1851. GEO. GOOD, Secretary.

MODEL DRAWING, 84, ST. MARTIN'S-LANE, Charing-cross, (removed from Exeter Hall.)—Perspective, Landscape and Figure Drawing taught from Models, the most successful method of learning to sketch from nature. Terms Twenty Shillings for Twenty Lessons. Private Lessons given. Schools attended.—For Models, Plans, and further particulars, apply to Mr. GANDEE, at the Institution, 84, St. Martin's-lane, Charing-cross.

LANDSCAPE BY CLAUDE.—A beautiful and charming Painting by this Master TO BE SOLD. It is the property of a Gentleman who will dispose of it reasonably. It can be seen any day between the hours of 12 and 4, at No. 23, Newman-street.

"THE ENGLISH LAKES"—A Series of 25 Pictures, painted during the last three years, by J. B. PYNE, Esq., of the "LAKE SCENERY of ENGLAND," is now ON VIEW in the large Gallery at Messrs. GRAVES', 6, Pall Mall. Admission on presentation of address card.—The Exhibition will close in a few days.

NOW ON VIEW, at Messrs. HERING & REMINGTON'S, 137, Regent-street, a finished Proof of the magnificent coloured Print of

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ENGRAVINGS.—GEORGE LOVE, 21, BUNHILL-ROW, FINSBURY, LONDON, informs Collectors he has on Sale (at reduced prices) a valuable and rare assemblage of ANCIENT and MODERN ENGRAVINGS and ETCHINGS, in fine condition, selected from the most important and celebrated Collections that have been disposed of in this country and on the Continent.

Catalogues forwarded on the receipt of two postage stamps; and they may also be had of the Importers of English Books in most of the Cities of America and Europe.

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NIMROUD OBELISK.—A reduced MODEL of this interesting Obelisk is just published, having the Cuneiform writing and five rows of figures on each side, carefully copied from that sent by Dr. Layard to the British Museum. The Model is in Black Marble, like the original, and stands 20 inches high. Mr. TENNANT, 149, Strand, London, will be happy to show a copy, and receive Subscribers' names. He has also Models of several Egyptian Obelisks.

STUDENTS in GEOLOGY, MINERALOGY, or CONCHOLOGY can be supplied with an extensive assortment of specimens to illustrate these interesting branches of Science, or with Elementary Collections, carefully arranged and described, at Two, Five, Ten, Twenty to One Hundred Guineas each, by J. TENNANT, Mineralogist to Her Majesty, 149, Strand, London.

Mr. TENNANT has Geological Maps, Hammers, Casts of scarce Fossils; also Geological Models in wood, invented by T. Sopwith, Esq., F.R.S., to illustrate the nature of Stratification, Faults, Veins, &c. from 2l. to 5l. each, accompanied with letter-press description. The latter can be had separate, price 1s. 6d.

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For EXHIBITION during the time of the Great Exhibition of 1851, at SOWERBY'S, 70, Great Russell-street, Bloomsbury.

1. A mass of CRIOLITE from Greenland, weighing about 90lb.
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3. A wonderful Specimen of the clearest ROCK CRYSTAL, with an hexahedral Pyramid in the centre formed of Asbestus. This Crystal, which is a mineralogical phenomenon, is supposed to be unique, Mr. Sowerby never having seen a similar one, so extraordinarily curious and beautiful. This is to be presented, by subscription (in the names of the Subscribers), to the British Museum, as soon as 100l. shall be paid to Mr. Sowerby.

ANCIENT and MODERN COINS, MEDALS, &c.—Mr. C. R. TAYLOR, 2, Tavistock-street, Covent-garden, respectfully announces to Connoisseurs and the Public in general that he has a very extensive Collection of the above Articles, comprising many rare and valuable specimens of Ancient and Mediæval Art, and possessing the greatest historical interest, from which selections may be made on the most moderate terms. Also several fine Proofs and Pattern Pieces, Numismatic Books, Cabinets, &c. &c. Articles forwarded to any part of the Kingdom on approval, on a reference being given. Collections formed or completed, and every information desired promptly supplied in reply to communications addressed as above.

NOTICE.—Mr. CLAUDET has transferred his DAGUERREOTYPE PORTRAIT ESTABLISHMENT to spacious and convenient premises, No. 107, REGENT-STREET (Quadrant, near Vigo-street). The Specimen Room is on the ground floor; and Portraits are taken in a large, improved, and well-ventilated Crystal Building on the first floor. Mr. CLAUDET'S Specimens at the Great Exhibition are in Class X., No. 296, on the North-west Upper Gallery, near the Great Organ, and above the Carriage Department.

E. J. DENT has REMOVED from 82 to 61, STRAND, (being 21 doors nearer to Charing-cross, and directly opposite Bedford-street,) and solicits an inspection of his extensive STOCK of CHRONOMETERS, WATCHES and CLOCKS, as above, also at 33, Cockspur-street, and 34, Royal Exchange (Clock Tower Area).

MERCHANTS, SHIPPERS, &c., are respectfully invited to inspect the warehouses of Messrs. R. COCKS & Co., 6, New Burlington-street, London, where will be found an excellent stock of superior PIANOFORTES, from 25 guineas upwards, manufactured by them for all climates. Their Musical Publications, likewise, will be found to exceed, in excellence and number, those of any other house in Europe.—Catalogues of instruments and music to be had gratis, and postage free on application. N.B.—Pianofortes carefully packed in cases lined with zinc.

EASTERN COUNTIES RAILWAY.—The attention of the HEADS and CONDUCTORS of CLUBS, PUBLIC INSTITUTIONS, FRIENDLY SOCIETIES, &c. is invited to the recently published ILLUSTRATED GUIDE of this Railway. The Company is prepared to arrange for the conveyance of parties to any of the places of historical note or interest described in it, by the ordinary or by special Trains, at very reduced Fares. Terms and further particulars to be had by application to the Coaching Superintendent, Bishopsgate Station.

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UNITED STATES.—A GENTLEMAN connected for many years with the Publishing Trade, about to visit America, will be happy to take charge of any COMMISSION having reference to Literature, that he may be intrusted with on behalf of either Author or Publisher.—Address, S., Publishers' Circular Office, 169, Fleet-street.

SLATES and MODELS to illustrate the RELATIONAL SYSTEM of REASONING, as described in the Treatise on the Process of Thought,' by ALFRED SMEE, F.R.S., &c.
Horne, Thornthwaite & Wood, Newgate-street.

KOH-I-NOOR DIAMOND.—APSLEY PELLATT & Co. having succeeded in producing correct COPIES in GLASS of this celebrated diamond and pendants, (as exhibited by Her Majesty,) will publish the same by subscription only, to be delivered so soon as ready, in the order of subscription. Price of the three diamonds, in jewel case, 3*l.* 3*s.* Patterns shown and subscriptions received at the Falcon Glass-works, Holland-street, Blackfriars, and 59, Baker-street, Portman-square.

TO GENTLEMEN ABOUT TO PUBLISH.—HOPE & CO., Printers and Publishers, 16, Great Marlborough-street, London, undertake the PRINTING and PUBLISHING of BOOKS, PAMPHLETS, SERMONS, &c., with the utmost expedition, and greatly under the usual charges. Estimates and every requisite information furnished gratuitously in course of post. Gentlemen will save NEARLY ONE-HALF by employing HOPE & Co.

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THEOLOGICAL PREMIUMS.—A GENTLEMAN deceased left by his Deed of Settlement a considerable Fund to be applied by his Trustees, at intervals of forty years, from 1774, in the payment of TWO PREMIUMS, for the best TREATISES on the following subject:—

"The Evidence that there is a Being, all Powerful, Wise, and Good, by whom everything exists; and particularly to obviate difficulties regarding the Existence and Divine Providence; and this, in the first place, from considerations independent of Written Revelation; and, in the second place, from the Revelation of the Lord Jesus; and, from the whole, to point out the inferences most necessary for, and useful to mankind."

The amount of the fund to be so applied cannot be less, at any period, than 1,600*l.*, and, as nearly as can be ascertained, it will, on occasion of the next competition, be about 2,400*l.* Three-fourths of the fund divisible at each period are appointed, by the terms of the bequest, to be paid to the Author of the Treatise which shall be found by the Judges, to be named as after-mentioned, to possess the most merit; and the remaining fourth to the Author of the Treatise which, in the opinion of the said Judges, shall be next in merit to the former, "after deducting therefrom the expense of printing and binding three hundred copies of each of the said Treatises, or of purchasing three hundred printed copies thereof, as the said Trustees shall direct, to be distributed by them among such persons to whom they shall think the same will prove most useful, or in any other manner that they shall judge proper."

The Ministers of the Established Church of Aberdeen, the Principals and Professors of King's and Marischal Colleges of Aberdeen, and the Trustees of the Testator, are appointed to nominate and make choice of three Judges, who are to decide upon the comparative merits of such Treatises as shall be laid before them; and it may be proper to mention that, to discourage mean performances, the Judges are empowered (if unanimous only) to find none of the Treatises produced of sufficient merit to entitle the writers to the premiums. The Trustees, however, believe that in the present state of the literary world, this is a contingency which can scarcely occur.

The Trustees, deeply sensible of the importance of the Founder's design, and anxious, as far as lies in them, to do full justice to his wishes, venture to give an assurance that, in appointing the Judges, at the proper time, nothing will be regarded but that eminence of character and qualification which shall secure a satisfactory decision.

The time allowed by the Testator for the composition of the Treatises for the next periodical competition, extends to the 1st of January 1854; and his Trustees do now intimate, in compliance with his appointment, that those who shall become competitors for the said prizes must transmit their Treatises to ALEX. and JOHN WEBSTER, Advocates in Aberdeen, agents of the Trustees, in time to be with them on or before the said 1st day of January 1854, as none can be received after that date; and they must be sent free of all expense to the Trustees.

The Judges will then, without delay, proceed to examine and decide upon the comparative merits of such Treatises as shall be laid before them; and the Trustees will at the first term of Whitsunday after the determination of the Judges pay the Premiums to the successful candidates, agreeably to the will of the Testator.

As it tends much to an impartial decision that the names of the Authors should be concealed from the Judges, the Trustees request that the Treatises may not be in the hand-writing of their respective Authors, nor have their names annexed to them. Each Treatise must be distinguished by a peculiar motto; this motto must be written on the outside of a sealed letter, containing the Author's name and his address, and sent along with his performance. The names of the successful candidates only shall be known by opening their letters. The other letters shall be destroyed unopened. The writers of the unsuccessful Treatises may afterwards have them returned, by applying to Messrs. WEBSTER, or the Trustees, and by mentioning only the motto which they may have assumed.

Letters addressed as above (post paid) will meet with due attention; and it will save much trouble in answering inquiries, to announce that there is no restriction imposed as to the length of the Treatises.

Aberdeen, 18th Sept. 1850.

AIX LES BAINS.—SAVOY.—Season of 1851, began on the 15th of May—princely establishment—splendid casino—first-rate restaurant—delightful gardens, two magnificent bands playing every day—journey performed from London in forty hours via Paris.

Sales by Auction.

Dr. Cutting's Collection of Shells and Minerals.

MR. J. C. STEVENS begs to announce that he is preparing for SALE by AUCTION the very Extensive and Valuable Collections of SHELLS and MINERALS, the Property of Dr. CUTTING, of Barbadoes.—The days will be announced in the next Number of this Paper.
38, King-street, Covent-garden.

Salvator Rosa.

MESSRS. FOSTER & SON are directed to SELL by AUCTION, at the Gallery, 54, Pall Mall, on WEDNESDAY, 16th of July, at 1 o'clock, a GRAND GALLERY PICTURE by SALVATOR ROSA; the subject 'LATONA AND THE FROGS.'
Now on View.

Extensive Stock of Modern Music.

PUTTICK & SIMPSON, Auctioneers of Literary Property, will SELL by AUCTION, at their Great Room, 191, Piccadilly, on FRIDAY, July 18th, and following day, the CONCLUDING PORTION of the extensive STOCK of MUSIC of the late Mr. G. WALKER, of Soho-square, Music Publisher, including MODERN MUSIC of every Class, Vocal and Instrumental, Glees, &c., and several hundred bound volumes of Selections of Modern Music.
Catalogues will be sent on application.

Valuable Books.

MR. HODGSON will SELL by AUCTION, at his Great Room, 192, Fleet-street, on THURSDAY NEXT, July 17, and six following days, at half-past 12, the MISCELLANEOUS LIBRARY of the late EDWARD JAMES WALLACE, Esq. (by order of the Executor). Including, FOLIO: Manning and Bray's Surrey, 3 vols.—Rapin and Tindal's England, 5 vols.—Valpy's Stephens's Greek Thesaurus, 7 vols.—Edmondson's Heraldry, 2 vols. QUARTO: Fleury, Histoire Ecclésiastique, 36 vols.—Sir W. Jones's Works, 8 vols.—Burney's Music, 4 vols.—Horticultural Transactions, 8 vols.—Ladbroke's Churches of Norfolk, 5 vols.—Philosophical Transactions, 1801 to 1840—Facciolati Lexicon, 2 vols.—Hutchinson's Durham, 3 vols. OCTAVO, &c.: Library of Anglo-Catholic Theology, 26 vols.—Library of the Fathers, 19 vols.—Penny Cyclopædia, 27 vols.—Burnet's Reformation and Own Times, 12 vols.—Classics, History, Biography, Periodicals, Works of Eminent Divines, &c. &c., many in elegant calf bindings.
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Beautiful Water-colour Drawings and Pictures, including the Original Portrait of Thomas Campbell, by Sir Thomas Lawrence.

MESSRS. S. LEIGH SOTHEBY & JOHN WILKINSON,
Auctioneers of Literary Property and Works illustrative of the Fine Arts, will SELL by AUCTION, at their House, 3, Wellington-street, Strand, on THURSDAY, July 17, at 1 precisely, a SELECT COLLECTION of MODERN WATER-COLOUR DRAWINGS, the Property of an Amateur residing in the Country; comprising some beautiful productions of

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Bentley	Fielding	Pyne	Taylor
Cattermole	Holland	Roberts	Vickers
Callow	Hunt	Robins	Wright.
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With some Pictures and Drawings, the Property of the late JAMES THOMSON, Esq., of Primrose, Clitheroe, including the Portrait of Thomas Campbell, the Poet, painted expresly for the deceased by Sir Thomas Lawrence.
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Interesting Collection of Antiquities, beautiful Etruscan Vases, fine Busts in Marble by Baily, Roubilliac, &c.

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Auctioneers of Literary Property and Works illustrative of the Fine Arts, will SELL by AUCTION, at their House, 3, Wellington-street, Strand, on FRIDAY, July 18, at 1 precisely, a VALUABLE and INTERESTING COLLECTION of MISCELLANEOUS ANTIQUITIES, including the Property of the late JAMES THOMSON, Esq., of Primrose, Clitheroe; comprising some beautiful Etruscan Vases of high quality, Tazzæ, Phœnician ware, Antique Glass, engraved Stones set in fine gold as Rings, and an Etruscan Gem with inscriptions, of high historical interest; Miniature Portraits, curious Objects in Bronze, English Antiquities, and other interesting examples of Art; a Marble Bust of Voltaire, by Roubilliac, in his best manner; a Bust of Lord Brougham, and another of Thomas Campbell, the eminent Poet, both admirably executed in statuary marble by that distinguished Artist, E. H. Baily, Esq.
May be viewed two days previous, and Catalogues had.

Valuable and Important Collection of Fine Engravings.

MESSRS. S. LEIGH SOTHEBY & JOHN WILKINSON,
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LONDON, SATURDAY, JULY 12, 1851.

REVIEWS

Recollections of Scenes and Institutions in Italy and the East. By Joseph Beldam, Esq., Barrister-at-Law. 2 vols. Madden.

Mr. Beldam set out on a tour with some friends in the course of 1845-6,—went through Switzerland,—crossed the Alps,—took his route through Italy, visiting the chief Italian cities,—made the passage from Naples to Malta,—left Malta for Alexandria,—stayed some time in Egypt, seeing the usual sights and making the usual remarks,—formed one of a camel party across the Desert into Palestine,—traversed Palestine from south to north, halting at Jerusalem and other towns and spots notable in Scripture history,—extended his excursions to Baalbec and other remarkable places in Syria,—returned per steamer to Egypt,—thence got conveyed to Malta,—backed through Greece to Asia Minor and Constantinople,—and finally came home through Trieste.

A tour so extensive and varied must have been very agreeable to Mr. Beldam while he was making it:—we cannot say, however, that the "recollections" of the "scenes and institutions" which he encountered in the course of it possess any very thrilling or novel interest. The style of the book is pleasing and gentle,—occasionally it is even poetic; but the matter is by no means so fresh or important as we should imagine might even yet be presented by a tourist who, following a route so often described before, at least in separate parts, should have carried with him either a shrewd turn for observation or a large power of general reflection. Considerable portions of the book are devoted to dissertations on the Mosaic chronology and history in connexion with Egypt, and to similar disquisitions on the topography of Palestine; but though these may be instructive to some readers, and especially to such as are unacquainted with more original and elaborate works on the same subjects,—they are on the whole somewhat meagre. Even the accounts of the author's personal adventures in the course of his journey are less attractive than they might have been. Occasionally, however, there is a passage worth noting. Here is a sketch of the present Copts of Egypt, the descendants of the ancient Egyptian Christians, and the degenerate representatives of the once-celebrated Egyptian Church.—

"The Copts of the present day have entirely lost their ancient learning, and are both intellectually and socially degraded; though still retaining a proud recollection of their ancestors. After having been thinned by ages of persecution and apostacy, they still amount to some 150,000 persons, nearly 10,000 of whom reside in Cairo, in a quarter specially assigned them. Great numbers live in the district called the 'Faioom,' and the remainder are scattered up and down in the cities and towns, where, for the most part, they fill the offices of secretaries and accountants. Their language is radically the same with the old Egyptian, but with many foreign admixtures and additions. It is not spoken, but is still used in their sacred books and public services; and it now furnishes a valuable key to the study of the hieroglyphics. From the numerous monasteries in the East, so many manuscripts in the Coptic and Sahidic dialects have been discovered by the Venerable Archdeacon Tattam, and others, that a complete copy of the sacred Scriptures has been recently printed, I believe, in their language. The Coptic tenets are in the main orthodox; but the people are divided into various sects, Jacobites, Eutychians, Monophysites, and Monothelites. Some of their practices are peculiar. They use both circumcision and baptism. The former is not deemed essential; but they consider that a child dying unbaptised will be blind in the future life. Pilgrimages they highly esteem, especially to Jerusalem, where they have a convent; and like the Jews and Mahometans, they abstain as well from pork as from things strangled, and from blood. Their religious orders consist of a patriarch, bishops, archpriests, priests, deacons, monks, and nuns. The patriarch is always unmarried. The bishops are usually so, or widowers. The priests are allowed to marry, but only to virgins. The deacons have the same privilege; but they are often mere boys. Monks and nuns take a vow of celibacy; and in some religious establishments they reside together: and, generally speaking, marriage is sanctioned only among members of their own body. In the ceremonies of marriages and burials, and in their general habits, they differ but little from the Mahometans. Their costume, however, is usually confined to grey, or gloomy colours. Their feelings are not, of course, friendly towards their Moslem oppressors; but are less hostile to them than to Christians of the Greek Church, an antipathy which they appear to have derived from their ancestors of the seventh century, and to which may be chiefly attributed the success of the Mahommedan invasion. The Abyssinian Church is an offshoot from the Coptic, and is supposed to have been founded about the middle of the fourth century. It holds the same doctrines and rites; and its chief *aboona*, or metropolitan, is nominated by the Coptic patriarch."

The author being interested in the question of the Slave trade, had resolved to take the opportunity of an expected interview with the late Pacha of Egypt to urge on him the suppression of this traffic in his dominions. The Pacha having left Cairo, however, about the time when the interview was to take place, Mr. Beldam paid his respects, instead, to Bakie Bey, the acting governor, and addressed his remonstrances on the slave trade to him. From the following account of the conversation, we should imagine that the Bey was more than a match for Mr. Beldam,—and, in fact, contrived (in vulgar parlance) to bamboozle him.—

"We began the colloquy by expressing, of course, all the interest we felt in the wonderful country we had come to visit, with suitable encomiums on its great and improved resources and capabilities. The bey politely acknowledged these compliments. The conversation then turned on the vast importance of commerce, especially with the interior of Africa. The bey's assent being given to this also, the subject naturally went on to the obstacles that stood in its way. Here I felt quite at home, with the information I had received from our Darfour merchant. I stated, therefore, that in the opinion of the regular traders, both native and foreign, there was no hindrance so great to legitimate commerce as the slave trade; and that, however much individuals might profit by it, the revenues of the pacha must materially suffer. It was the pacha's interest, therefore, to put it down. Nods of approval from the bey, as I proceeded, showed that he understood my observations; which were translated, notwithstanding, by the man in office, and again formally assented to. With a further view to commerce, I then took the liberty to suggest that intelligent young slaves should be educated and sent back to their respective countries, to sow the seeds of improvement, of which the pacha would, hereafter, be sure to reap the harvest. It was now the bey's turn to reply, which was done through the same official medium. He acknowledged, in brief, the truth of all that had been said. None could doubt the value of a commerce with the interior; and the report of the Darfour merchant was entitled to credit. The slave trade must certainly be a hindrance to every other traffic, and consequently, injurious to the pacha. But as for the plan of educating slaves, and sending them home—singularly enough!—it was the pacha's own benevolent idea; and would, he believed, be speedily carried into execution. So perfectly agreed were we on the slave trade, that the conversation now became general; the favourite Oriental topic—the speed of the railways—coming first, of which I gave him such an account as made him shrug his shoulders with affected surprise, though of course he knew all about it before. He then expressed his warmest gratitude for the many attentions shown to a brother of his, who had been staying in England. While we were thus mutually offering civilities, and the bey was acknowledging his sense of English hospitality, pipes and coffee were undergoing our grave discussion; the servants appearing and disappearing in the manner I formerly described. At the end of the second edition we rose, and were conducted by our host to the bottom of the room, where we took our leave: we to our affairs in the city; and he, smiling, of course, at his own dexterity, to the official duties of the divan. Bakie Bey was a well-favoured man, of a European complexion, with quick grey eyes, and a remarkable subtle aspect. During the whole of the conversation I was conscious of the lynx-like scrutiny we were undergoing; and I entertain no doubt he took it for granted at the close that we had been thoroughly gulled. It certainly was too much to expect sincerity on such a subject as the slave trade; but we were not more imposed upon than our neighbours. Shortly after this reception, it seems that several of my former colleagues obtained an interview for a similar purpose with the late Ibrahim Pacha, then on a visit to this country, who treated them to the same good-natured expressions of sympathy and approval. That account appeared in the public journals; and it is possible that our own story of the old pacha's benign intentions might have obtained the same wide circulation—as intended of course by his astute representative—had we not fortunately discovered, almost immediately after leaving the citadel, that the whole had been ingeniously invented by our host for the occasion."

We had no idea till we read the following passage, how comfortable, in respect to victual, an Englishman (money in his pocket presupposed, there, as elsewhere) may make himself during a camel-journey across the Desert.—

"I have already spoken of the '*savoir faire*' of Khalifa—[an Egyptian servant who acted as cook to the party]. The entertainments commonly furnished us were worthy of the Palais Royal. Here is his usual bill of fare:—*Breakfast*, tea, coffee, hot rolls and English butter, cold fowls or other meat, eggs, and milk. *Lunch, en route*, cold meat, bread, English cheese, and fruit. *Dinner*, soup à la julienne, roast or boiled mutton, fowls, vegetables, rice, maccaroni, pancakes of the most delicious kind, a variety of condiments, and a dessert. Tea and coffee at bed-time; liqueur and stout for those who liked them; abundance of Nile water, preserved in glass bottles, of which we partook plentifully at meals; and Latakia of the finest quality. Throughout the journey we suffered little from thirst, and seldom drank during the day; a circumstance which I attribute mainly to abstinence from all fermented liquors. I certainly began to think, for the first time in my life, that I should become a *gourmand*. As a counterpart to this European diet, it may be worth while to know something of the cookery so jocosely recommended by the noble author whom I have already quoted [Lord Nugent]. My companion and I walked out this evening, and witnessed the following scene:—An old Arab sat on the ground and a lad stood beside him, preparing their supper. The old Arab had a large flat earthen pan, into which he emptied a quantity of coarse meal. The boy, with a pitcher of water, fetched, no doubt, from the neighbouring pool, was ready to pour it on the meal as the old man wanted it. Filthy enough were the old man, the lad, the platter, and the meal; but the climax was yet to come. There was a smouldering fire burning in a sand-hole just by, the fuel of which was principally made up of camel's dung. When the dough was sufficiently kneaded, the old man spread it out with his begrimed hands into a large flat cake; then opening the fire he laid the cake upon it, covered it with the hot reeking ashes, and in a little time the savoury food was baked to the owner's satisfaction. This was the ordinary diet of the Arabs of the caravan. On festive occasions, such as I shall hereafter describe, a sheep or a goat is cooked in an equally primitive way, and washed down with a due proportion of puddle water. It will be easily imagined, that among people who fare in this way, a handful of tobacco or a pot of coffee is enough to make their hearts leap for joy."

In lieu of any specimens of the topographical

descriptions of Palestine which occupy the greater part of the second volume, and some of which are minute enough to convey new information to the Biblical expositor and archæologist,—we will quote the author's summary view of the present state and prospects of Syria.—

"Adieu to the pleasant but degraded shores of Syria and Palestine! What might not such countries become under a wise and paternal administration? On all hands we heard complaints of the Turkish Government, and unfavourable contrasts drawn between it and the Egyptian. The exactions of Mahomet Ali were not denied; but then he would allow no other than his own, and the people at least enjoyed some equivalent in the general security of their persons and property. Whereas now, they had all the evils of bad government without the alleviation. We were told, that at Beirout, English influence was very much on the decline; the assigned cause being, that the tribes of the Lebanon had been encouraged to expect many advantages from the recent political change, of which English insincerity had defrauded them. There could be no doubt that French intrigues were employed to circulate such notions; and that the convents attached to the See of Rome were willing instruments in disseminating mischief. It was high time, therefore, that some new arrangement should be made to check such proceedings. And the recent establishment of direct political relations between the Sultan and the Pope, may possibly tend to that object. In taking leave of Syria, I am not about to write a character of the Asiatics: but I may express an opinion which probably will not be thought singular, that they have been generally underrated by Europeans. We have been taught from our youth to regard them as equally effeminate and demoralized: and to whatever extent this may now be true, we have too little considered the causes. All that ages of delusion and misrule could possibly do to deteriorate human beings, has certainly been done and suffered in the East. But it is impossible to read the achievements of the past, or to study the portraits sculptured on the enduring marble, by that elder race of mankind, without perceiving that nature at least has done them no wrong. Those muscular forms and decided physiognomies which appear on the walls of Nineveh, while they prove the noble parentage of the present generation, argue the possession of the highest physical and intellectual energy, needing only a wise and moral culture to turn them to the best account. To suppose, indeed, that part of the human family, among whom all arts, sciences and religions flourished and grew old, before they were known to the western world, could be naturally inferior to the rest of their species, would be the extreme of egotism and bigotry. That their inherently great qualities have been miserably degraded and disparaged, cannot be questioned. And how to restore them to the rank they have lost, is an enigma which Providence alone may possibly be able to solve."

Mr. Beldam agrees with almost all other writers on the East, that Mohammedanism seems to be waning in the chief centres of population there, and especially at Constantinople, —that the condition of the Oriental nations under the rule of the Turks is everywhere most wretched,—and that Russia, through her instrument, the Greek Church, is gradually extending her influence into this part of the world.

London at Table; or, How, when, and where to Dine and order a Dinner; and where to avoid Dining: with practical Hints to Cooks. To which is appended the Butler's and Yacht Steward's Manual, and Truisms for the Million. Chapman & Hall.

THE title of this book is calculated to raise an appetite which its contents will by no means satisfy. Where to dine and what to dine on in London are matters so hard to decide, and imply doubts so costly in the solution, that hopes of at last being cheered by a Handbook for the Hungry were naturally stirred in us by the words which head our article. Alas! that in the invitation which they convey they should so closely resemble a napkin which contains no bread —a tureen from which the soup has been left out, —and that memorable *entrée* set-a-going by the Dublin Lady whose imagination was larger than her hospitality, and who caused to be handed round (or report lies) a *plat* of sawdust in melted butter!

In page the first, there is a flourish about the "Great Exhibition,"—in page the second figure Tiberius, Apicius, Lucullus, and a Scripture quotation in which it is recommended that man shall eat "every moving" thing (toads, owls, polecats and spiders of course included). This is Cosmopolite, Rationalist and Social, we fear, rather than in anywise a fair exponent of the Londoner at market or at table. In page the third, parties made up in a hurry to go to the theatre are recommended to dine at the "Piazza Coffee-House" or at "Clunn's, in Covent Garden." "The Blue Posts" (with its perfect gin-punch) and "Dolly's Chop-house" are specified as places of comfortable and easy resort: —also "*Verê's*" (for "Verrey's") in Regent Street. Regarding Simpson's, in the Strand, there is a dead silence. Neither might "The Cock" have been ever immortalized by our laureate were this account of "London at Table" to pass for an authority. But not only have we to complain of blanks,—there is not a word to give the citizen from Calais or from Cirencester the remotest idea of the comparative costs of the places of entertainment mentioned. So early as page six our author disappears into the club-houses; and when he gets there, to make amends for his own want of matter, helps himself out by quoting the "Original" touching club-house comforts in general,—an expedient commonplace, shabby, and scant of edification to the *Cœlebs* in London searching for a dinner.

From the clubs we pass on to St. George's Hall, Windsor. Here, in place of eatables, we are put off with an armorial ceiling, and the Indian jewellery with which Her Majesty's cloth is laid on an Ascot day—(Windsor for the nonce being made a part of London). Next, we fly off to private houses, regarding which our diner-out is charmingly explicit and exclusive.—

"Without wishing to particularise any great dinners given during the London season, it may suffice to give a brief account of the average of the best mounted houses. You order your carriage, which lands you within five minutes of the appointed hour at your host's door, and after passing through the hall lined with servants in and out of livery, you are ushered into the presence-room. About ten minutes after, dinner is announced, and your hat is taken from you as you descend the stairs to enter the drawing-room. To enter a drawing-room without your hat is a solecism, except perhaps in what Theodore Hook used to term the wild uninhabited parts of London. A delicate soup and turtle are handed round, nothing on the table except flowers and preserved fruits in old Dresden baskets, a bill of fare placed next to every person, a turbot with lobster and Dutch sauces, carved by an able domestic, on the side-board, and a portion of red mullet with Cardinal sauce are offered to each guest; cucumber and the essential cruet-stands bringing up the rear. The 'flying dishes,' as the modern cooks call the oyster or marrow *patés*, follow the fish. The entrées are carried round, a *suprême de volaille aux truffes*, a sweetbread *au jus*, lamb cutlets with asparagus, peas, a *fricandeau à l'oseille;* carefully avoid what are called flank dishes, which, if placed on the table, are usually cold, and are quite unnecessary; either venison, roast saddle of mutton, or stewed beef *à la jardinière*, are then produced, the accessories being salad, beetroot, vegetables, French and English mustard. A Turkey poult, duckling, or green goose, commences the second course, peas and asparagus following in their course; plovers' eggs in aspic jelly, a mayonaise of fowl succeed; a macédoine of fruit, *meranges à la crême*, a marasquino jelly, and a chocolate cream, form the sweets. Sardines, salad, beetroot, celery, anchovy, and plain butter and cheese, for those who are gothic enough to eat it. Two ices, cherry-water, and pine-apple cream, with the fruit of the season, furnish the dessert. Two servants or more, according to the number of the party, must attend exclusively to the wine; sherry, Madeira, and champagne, must ever be flowing during dinner. Coffee, hot and strong, ought always to be served in the dining-room with liqueurs; if it be carried up stairs, it gets cold, and the chances are ten to one some awkward person upsets a portion of the aromatic beverage into the lap of a lady; besides, it is unfair to ask a butler and his myrmidons with the trays to steer through a crowded drawing-room, amidst chairs, ottomans, fauteuils, screens and tables, with gentlemen lounging in every direction. From this large and boring dinner, let us turn to the perfection of all, a party of six, eight, or ten, at a bachelor's snuggery. A private note, instead of a formal printed card, has been sent out, naming eight, railway time, and at that hour, to a minute, the guests are seated, the host having led the way. Turtle from the Adelphi or Waterloo hotels, Liverpool, a Severn or Wood Mill salmon, caught in the morning, a rol *au vent*, Maintenon cutlets, poularde, duckling, green peas, jelly, and cream, form the main part of the dinner, while a leg of cold lamb, *paté de Strasburg*, a Spanish ham, dressed crab, or a lobster salad, are on the sideboard for those who prefer cold to hot dishes. Moselle and claret-cup, pale sherry, old Indian Madeira, that has been so often sent to the East, that it has almost become tired of the voyage, and champagne for those who prefer a more exhilarating beverage, with magnums of Crockford's or Charles Cunningham's Chateau Lafitte, furnish 'the flow of bowl.'"

An epithet in the above passage (which is one of the most practical in the book) made us for a moment anxious. It is the word "Gothic" as applied to Gruyère, Parmesan, Strachino, *fromage de* Brie, *fromage de* Neufchatel, or Stilton! The contempt of a diner-out in his carriage sat heavy on our souls. On turning a page, however, we found this exquisite eater recommending bachelor Amphitryons to "job" their hams from a cook's shop! This proposal may not be "Gothic," but it merits an epithet as truculent and extinguishing as the desire for cheese,—the invention of which we gladly leave to M. Soyer.

Several well-worn stories concerning Theodore Hook, Dean Cannon, and their convivialities, are next set before the hungry pilgrim in London:—then a stale joke or two are served up—flat and cold—and Part the First concludes.

In Part the Second, butlers are taken to school,—and for fact the first, are assured that "Cookery-books abound in every bookseller's shop,"—next, that there should be flowers on the table,—that the dining-room should be well lighted,—and that the waiters should have feet as noiseless as *Time*,

That only treads on flowers.

—Vague and obvious counsels these! One or two pages of more minute instructions follow; —but were they acted on, the ideal Butler under instruction would at best be hardly fit to wait upon his Barmecide master, the author of this book,—whose catalogue of London tables is merely a blank sheet, and whose bills of fare we would indorse (club fashion) with a complaint.

Part the Third consists of a few receipts addressed to sea-sick persons "on board yachts," —and as such of universal applicability.—Part the Fourth is cribbed from 'Poor Richard' and other such discreet and unknown books,—being a collection of maxims called "Bayleyana." This, we suppose, if connexion it have with the main subject of the book, is meant to furnish heads for table-talk to ideal diners-out. They fare little better than the imaginary Butler just dismissed, or than the Stranger in London who, wishing to

know where, how, and for what to dine should rashly disburse his shilling or shillings in purchase of this catchpenny in its grasshopper livery of green and gold.

The Rhine—[*Der Rhein*]. By J. G. Kohl. 2 vols. Leipzig, Brockhaus; London, Williams & Norgate.

Herr Kohl is already so well known to our readers as an observant and pains-taking traveller, that some notice is due, on the score of old acquaintanceship, to his present essay; although the merely local interest of its subject and the laborious precision of its details place it among those works of which a summary description only can be given in these columns. It is a monograph, of which the ruling idea is, the commanding part assigned to Rivers in the developement and location of the human race. Migrations and settlements are determined by the flow of these great natural canals, which have in all times been the arteries of social and national life. But their general importance in this respect is specially modified by other accidents of physical geography in the regions traversed from their sources to the sea; according as these may produce a straight or circuitous course, compel the stream to wind in unnavigable coils through a wilderness of mountains, include it in more or less contracted valleys, or give it free transit through open plains. These conditions are found in various degrees of prominence, and some of them with varying orders of succession, in all great rivers: their importance to mankind principally depends on the relative measure and distribution of such effects. The points where a new class of physical accidents affect the course of a stream are not only of moment in modifying its character as such—they form the links which connect it with population and traffic, determine great movements of races, the sites of cities, and the lines of military operation. Political aggregates, no less than bounds of language, are in a great measure defined by the irresistible influence of natural conditions: throughout which the River, receiving, combining and reflecting their compound influences, acts as the chain by which all are held together and animated. In this sense, an anatomy of the rivers of the civilized world would be an object of importance to the philosopher;—who finds all that belongs to the material history and relations of the spaces which they drain or irrigate — from the earliest appearance of savage occupants down to the latest survey of their actual possessors, of their emporia, and of their political limits—following more or less closely a command traced as it were by the finger of Nature herself in the course and connexions of the great liquid highways of the Continent.

Such is the general view which the author has undertaken to verify in regard to the chief river and bulwark of his native country. The Rhine, in virtue of its direction, extent, navigable character, and proximity to the main European lines of communication intersected by its current, is the principal water-way of the Continent; and as such, from Roman days down to our own, has accumulated along its banks the ruling interests of its central inhabitants. How this pre-eminence results from the nature and course of its channel, is traced by a minute examination of the stream from its rise in the Grisons to its swampy delta in Holland,—from the mountain barriers over which it has forced a way, across the two great basins wherein its waters once stagnated as lakes, and along that wide lower plain which in remote ages was covered by the salt sea. By these different stages of its descent the stream is divided into so many distinct sections; each of which is closely studied with respect to the special character which local features impart, and to the manner in which these have influenced the ways and works of men, the rise of cities and dominions, the incursions and battles of rival nations on all sides of it. This survey cannot be effectually made without advancing far beyond the banks of the main channel itself. The valleys and passes of the heights which confine it must be followed up, to prove the natural direction of land-roads converging to main stations of river communication, and the connexion by these paths with other great running waters, or with the remoter sea. Still more important it is to track to their sources the tributary streams, whose confluence not only strengthens the main current, introducing higher degrees of navigable power, but also marks the site of great emporia, where traffic and intercourse alternately meet and separate in lateral directions. Throughout this examination the memorials of History are constantly and carefully sought out, to illustrate the conclusions derived from a study of the physical properties of the scene; and one result of the inquiry is to demonstrate, in a manner on the whole convincing, that the larger movements and abiding works of man are by no means fortuitous,—but, on the contrary, will always be found obedient to the irresistible commands of Nature. Whatever is attempted in defiance of her laws, from the planting of a tree to the building of a city, is infallibly short-lived. In seeking, therefore, what to construct or how to improve, it is of all things needful to ascertain what may be termed the will of Nature in the given case, in order that production may be healthful and progress attainable.

From the truth of this conclusion few considerate persons will dissent:—nor will the special demonstrations of its principle, as applied by Herr Kohl to the life and history of the great German river, be often disputed by those who may do him the justice to follow out his minute and sedulous inquiries; in which we might almost say that every rivulet, hillock, field-path or hamlet on either side of the Rhine has been studied not less carefully than its larger features. The impartial reader, indeed, will sometimes find in the author, what is common enough in ingenious writers, when full of a comprehensive theory, and resolved to make it apply with a completeness impossible in cases where the phenomena result from the joint action of many causes, some of them wholly intangible. We are now and then instructed to find a sufficient and strict necessity for determinations which may so far be called accidental, that there appears no positive reason why the choice might not have fallen otherwise with precisely similar effects. To argue that because we find a given thing thus, it must necessarily have so been, and thereupon to seek out the line of inevitable impulse, in order to bring it within the purview of a given system,—is not always an infallible method. There is, after all, a certain liberty in organic motions, so far, at least, as human eyes can follow them: and while the only sure way of discovering natural laws must proceed by induction from their visible issues in fact, the inquirer who is resolved on thus obtaining a positive fiat for every particular, as well as a general order for the main outline of his subject, will often be tempted, by the limited scope of human perceptions, to confound those distinct notions of the possible and the necessary in the discrimination of which lies the very essence of human reasoning.

It must be allowed that our author does not often overstrain his system in this manner, or in points of importance. The great conditions of settlement and communication along and across the Rhine valley are indeed inscribed in legible characters: some part of the meaning of which strikes the most cursory glance, while its whole significance appeals to the inquirer who comes to his task with history for his guide, in terms which command assent. From the earliest known times, he finds the same physical causes which now lead the lines of intercourse in certain directions,—the same advantages for traffic or war which now render certain sites important and populous, acting with similar effects on the rude communities and simpler relations of the Past. The cities which now command the Rhine at its cardinal points either rise on the stations which Cæsar and Germanicus found already occupied as chief places by the Celtic or Teuton settlers, or were built on the ground of Roman military posts raised at the confluent points of the land and waterways most apt both for commerce and for military communication. The lines of modern railroad which now traverse the adjacent country, with scarcely an exception, follow the same tracks which nearly two thousand years since were opened for the march of the Imperial Legions,—not unfrequently on older paths which Marcomanni and Sicambrians at one time, or the Ubians and Alamanni after them, had already beaten in their migrations or predatory marches. The points for the passage of armies across the river were determined in the campaigns of Turenne or Napoleon by the same local features which governed the movements of Cæsar and Drusas.

This general result of the essay obviously includes the elements to be applied in provision for the future, as well as explanations of the present and illustrations of the past. The method by which it is here deduced from a close examination of every feature in the physical geography of the region surveyed, confronted with the records of history and the data which statistics supply, is too minute and exhaustive to attract ordinary readers. The work belongs to a class of special treatises, calculated for the scientific geographer, the economist and the statesman; and will be consulted, not without profit, by those who are studious of causes unmooted in common histories, or who would ascend to the more recondite springs of civil progress and national power.

NEW NOVELS.

Home is Home: a Domestic Tale. Pickering.

A more tempting history of a ruined family we do not recollect than is here laid out by an amiable anonymous. This "domestic tale" is enough to make persons in easy circumstances wish to be "sold up;" since there is hardly a faëry surprise that Fancy could imagine which does not befall the members of the stricken household. A very sour old gentleman, with a very generous heart (the rather frequent Good Unknown of novels who has a sentimental secret, guessed at, but not known by, his confidential housekeeper), attends the sale of Mr. Sinclair's effects, buys up the choice lots, and restores them with those little mysterious direction cards, so flattering to the tastes and humours of the parties benefited, which, in real life, are always arriving at the doors of the desolate by the parcel-cart or the railway-van!—An artist, who habitually lends his house to people in difficulties, provides a location for the ruined gentlefolk; and lodgers, who are in possession already, straiten themselves to accommodate the interesting new-comers. Mr. Sinclair "resolves on employing his talents as a painter for the benefit of his family," forthwith pitches his

easel, and rivals Lee and Creswick. Kate, the heroine, determines to go out as a governess; and writes to an experienced friend in that profession for counsel and recommendation. Miss Hartop, the lady consulted, happens at that juncture herself to be in search of a situation, and to know of an angelic Lady Beauchamp with whom she had intended placing herself; but this certainty of a home amongst angels she at once makes over to the newer candidate. Thus swimmingly goes on the story to the end,—regarding which, *Audrey's* question will arise—"Is it a true thing?" We hold *Cogia Hassan's* adventures in the Valley of Diamonds to be something truer; not therewith intending the slightest treason against the beneficence, the unselfishness, the considerate delicacy which do exist in this strange world to sweeten the bitter cup of affliction. No one can be cognizant of many classes of men and circles of action without having touched, tasted, handled these, so often as to feel his deep and grateful faith in the loving-kindness of man to man enlarged and confirmed by experience. But supply and demand are not so progressively quadrated as in this "domestic tale." The kerchief is not always ready just at the moment when the weeping sets in. The knock announcing *California's* coming does not always arrive at the precise instant when the Sheriff's officers are preparing for a "fell swoop." Why, then, bewilder our eyes by holding up pictures of this world so utterly false in the combination, if not the colour, of their incidents?—Good intentions, when they take the form of amiable misrepresentations, may do as much mischief as malignant perversions of reality; and, on these grounds, 'Home is Home' must dispense with our commendation.

Castle Deloraine; or, the Ruined Peer. By Maria Priscilla Smith. 3 vols. Bentley.

THE amount of sin and suffering in this dismal novel is beyond the usual terms of fair tragic allowance; nor can the liberal introduction of "talk by the way" concerning genius, philanthropy, wicked riches and virtuous poverty, which 'Castle Deloraine' contains, beguile us into mitigating our epithet.—Where the tale is not excruciating, it is apt to be prosy. The ruined peer's son, Henry Thornton, is an enthusiast of the *Waverley* species: but worse and weaker than Scott's changeful hero,—since, whereas *he* was only vacillating, this gentleman is criminal. On the verge of ruin, Lord Deloraine enjoins his son to make a rich marriage. To this expedient the youth is honourably disinclined. Chance and Cupid, to foment this disinclination, throw him into the way of a beautiful and gifted creature, whom evil stars have placed under the guardianship of a wicked French adventuress. Partly out of sympathy, partly from contradiction to the scheme matrimonial, Henry falls violently in love with Ellen Maynard. They elope—and are married according to the rites of the Roman Catholic Church; but the marriage must needs be concealed from the ruined peer, lest he should be thereby made uneasy. Alas! every experienced novel-reader will perceive in this concealment food for greater uneasiness to the hidden-up wife.—During the honeymoon, everything goes well—and with what super-sweet and double-gilt honeymoons do novel writers treat their victims!—but the Leaden Age arrives rapidly. Henry becomes satiated and changeful,—and at last allows himself to snatch at a miserable subterfuge to escape from the consequences of his own rash passion. When at length he is compelled by stress of circumstances to confess what he has done to Lord Deloraine, the ruined peer reminds his son that the marriage as it stands is no marriage at all. Great repugnance and horror are shown by the hero to the tempting suggestion implied by these tidings,—but the repugnance and the horror melt away as rapidly as does tyrannic wrath in a *ballet* where the black-browed *Dionysius* who has been on the point of roasting *Arlechino* and *Colombina* relents, joins their hands, and smiles—all within the space of an *andantino* eight bars long—in order that he may be ready to take his place as pivot or pedestal in the *pas de trois* which is coming! Accordingly, the ruined peer's son marries (this time legally) Miss Annie Marsden, an heiress. The unhappy Ellen is put through all the torturing paces of doubt, vicissitude, desolation, compelled to return to the protection of the abominable Madame Leclerq, and most perseveringly wooed by one of that lady's gambling acquaintances—even before it becomes known to her that her Henry has done what ballad *Henrys* have always done by their *Ellens*—namely, "left her for another." A terrible catastrophe succeeds,—the particulars of which Pity forbid that we should narrate! If we have treated the foregoing agonies lightly, it is because we believe that such a series no more falls within the average circle of life and sorrow than do the wondrous comforts which spring up round the "ruined family" of whom the enviable estate was pointed out in a foregoing paragraph. Nor does the style of this novel redeem the romantic misery of its incidents. The dialogue is lachrymose and turgid—the episodical conversations are weak and dragging. We could name many a catechism and catalogue which are far lighter reading than this work of entertainment:—and we state the fact wearily, for we reflect how small is the chance of its proving the last of its race!

Original Views of Passages in the Life and Writings of the Poet-Philosopher of Venusia; with which is combined an Illustration of the Suitability of the Ancient Epic and Lyric Styles to Modern Subjects of National and General Interest. By John Murray, M.A., Royal Gold Medallist in "Science and Art," by award of His Majesty the King of Prussia; First Junior Moderator in Ethics and *Logics;* Ex-scholar and Lay-Resident Master of Trinity College, Dublin. Hodges & Co.

IF we might hazard a guess, we should say Mr. Murray is a young man. Right or wrong, such is the notion suggested to us by the perusal of his 'Original Views.' We put it to the reader whether the very title—which we have taken the trouble to transcribe for the sake of obtaining his opinion—does not plainly bespeak a forward youth. When we came to examine it clause by clause, after getting through the book, we were not a little surprised. '*Original Views,*'—which at first struck us as rather a modest announcement, considering the hackneyed character of the subject,—then appeared a misnomer for *crude notions.* Again, the use of the affected roundabout phrase "*the poet-philosopher of Venusia,*" instead of the name Horace, is a violation of good taste. Another offence of the same sort occurs in the next clause, where mention is made of "an illustration of the suitability of the ancient epic and lyric styles to modern subjects of national and general interest:"—which in plain English means nothing more than some hexameter verses, followed by an imitation of Horace's 'Carmen Seculare,' composed in honour of the birth of the Prince of Wales. Lastly, the long array of titles affixed to the author's name savours rather too much of ostentation.

The impression produced by the title-page is deepened by the preface. After telling us with an affectation of modest regret that his conclusions are "frequently adverse to generally received notions," the author proceeds in a tone of supercilious conceit, which nothing but the immaturity of youth can excuse.—

"While, therefore, I am far from affecting to depreciate that species of 'authorship' so valuable to rudimentary education whose end is instructive compilation, and whose operation is legitimately a kind of sartorial process exercised upon furnished materials, I am compelled, by the necessities of the case, to present my *humble* contribution to the permanent Exhibition of the Industry of all authors, the recognized 'Commissioners' of which are the successors of the *Sosii*, in a perfectly independent form, and one which, *I fear, is ill adapted to the great majority of junior students.*"

A very Uriah Heep sort of humility this. How scornfully our young friend turns up his nose at the common-place drudges who confine themselves to the task of useful compilation, while he soars aloft on the wings of invention into the pure ether of original discovery. It is amusing to observe the patronizing tone in which he speaks of "junior students," who, he fears, will not be able to comprehend his profound lucubrations. We will leave the reader to form his own judgment on the merits of the wittiicism relating to the Exhibition.

When we turn to the work itself, we find it of a piece with the title and the preface. Affectation, pedantry, and conceit are everywhere discernible. The style is forced and stilted, obscure and incorrect. Every opinion or conjecture on some trifling matter is magnified into a theory, and solemnly discussed with all the laboured technicality of logical science. Mr. Murray seems not yet to have learnt to call a spade a spade. He shuns natural simplicity and ease as if he thought them synonymous with vulgarity. Let these two specimens suffice for the purpose of illustrating our meaning.—

"That casual associations should be familiar at one time or place, which in a different locality or age are impracticable or inconceivable, will not appear astonishing to any who reflect how much the suggestions of human invention, and even the powers of fancy, are influenced by local varieties of external nature. On the other hand, the constitution of human society and the natural laws of improvement require that the main amount of the thoughts and practices of men should originate in constant sources, should be familiar to the intelligence of communities in general, and should be transmissible in their *virtual history* through successive ages. Hence those recesses in the extant shores of ancient literature, which time and change have locked against us, occupy but a trifling portion of the vast included space; and from almost every department of these inexhaustible resources the visitant 'bringeth forth new things and old.'"

"The benign virtue of charity which 'covereth the multitude of sins' in our neighbour from the censoriously magnifying gaze of his fellow-mortal, is seldom more gracefully exercised than when a biographical tribute rendered to departed worth so paints the foibles and failings incidental even to the best combination of attributes which can constitute human character, that they may exhibit a tinge borrowed from the brightness of the virtuous aggregate, without imparting to it a like proportion of their own sombre hue. Questionable indeed would be the taste which could find any relish in disturbing associations at once so creditable and so pleasing that it is to be regretted that kindred feelings less frequently modify the stringent judgments which we are prone to pass on the living."

In another part of this so-called original work, we are told that truisms "betray barrenness of mind even in common conversation, and should be wholly forbidden to disfigure the philosophic page." Whether the author considers his pages philosophic or not, we forbear to determine; but we think it would be a matter of no great difficulty for a discerning reader to detect one or two truisms lurking under the laboured verbiage of the above extracts.

The "original views" of the life of the bard of Venusia—or the poet-philosopher of Venusia, as Horace is variously termed — amount to nothing more than guesses upon two or three points of little or no importance. One question started is, whether it is likely that Horace intended by the use of the word *convictor*, in a well-known passage (Sat. I. 6. vv. 45—48), to indicate his real position in relation to Mæcenas. Mr. Murray, by a process which he calls etymological induction, comes to the conclusion that "*convictor* is never a term of dignity, but is employed either in associations of contempt, or as intimating a *chum-like* familiarity." He then asks whether, supposing this interpretation correct, it is reasonable to believe a young man of low birth, great modesty, and good sense—a struggling author not yet known to fame—would presume to claim such a familiar intimacy with a statesman of Mæcenas's "mental and moral *éclat*." On the strength of this questionable reasoning, and the adoption of a disputed reading, he considers that the term *convictor* was applied to Horace by envious rivals, not used by the poet himself, to express his relation to Mæcenas. Grant him his premises, or rather assumptions, and the conclusion will appear not improbable. But the dubious point so hypothetically supported was scarcely worth twelve pages of elaborate discussion. The next question is, whether it is certain or probable that Horace was ever a *tribunus militum*. No less than eight-and-twenty pages are devoted to the investigation of this momentous question and a collateral one arising out of it as to whether "biographers are right in stating that Horace repaired to Athens *for the purpose of completing his education*, according to the fashionable curriculum of the day," which the author for various reasons thinks improbable. The last inquiry is, whether a military tribune had at any period of Roman history the command of a legion *ex officio*. The discussion of this point, together with a sort of recapitulation of what has been stated before, extends over other eight-and-twenty pages, — and completes the "original views" of the life of Horace.

The rest of the book is devoted to the critical examination of detached passages from the works of the "poet-philosopher," and a few "trifling propositions attributed to Roman satirists." Having already extended our observations so far, we are afraid to weary the reader by any minute comments on this portion of the work. We must therefore content ourselves with the general remark, that whatever is really original appears to us so crude, that before many years have elapsed the author will wish he had not rushed into print at so early an age. Every now and then our expectation is raised to a high pitch by the mysterious announcement of some notable discovery or some easy solution of a difficulty which has baffled the skill of all previous scholars. We cannot say that this expectation is never disappointed. Mr. Murray's conjectural explanations are rarely so satisfactory to us as to himself. The enthusiasm with which he cries εὕρηκα awakens but a feeble response in our breast. For example, we see nothing particularly brilliant in his conjecture with regard to the passage

horæ
Momento aut cita mors venit, aut victoria læta.

"May not," he says, "*momento* be here advantageously taken in its *original* acceptation; and the phrase be rendered—'*by the preponderating influence* of a single hour (thrown into either scale) comes, &c.'?"—Nor, again, are we disposed to acquiesce in the following *dictum* on the lines—

quid faciam si furtum fecerit, aut si
Prodiderit commissa fide, sponsumve negarit?

"There is no necessity for understanding *fide*, in the last verse, as an obsolete case-form. The phrase *commissa fide* may be very well rendered —'things (of any kind) intrusted *in honourable reliance*' (whether positively or impliedly) to a friend's guardianship."

Just to give the reader a foretaste of the grand improvements in the philosophy of grammar which may be expected from this promising author, we will quote his proposed definitions of *attraction* and *zeugma*.—

"Attraction is a *principle of sympathy* between a relative and its antecedent, which assimilates their case-forms; predominating in proportion to the flexibility of the language, (being, for instance, more frequently met in the Greek than in the Latin language), and operating *usually* by accommodating the dependent term to the principal, but occasionally *vice versâ*. The preceding definition is limited *to suit received opinions* [our modern Bacon is so far in advance of the age that some modification of his 'original views' is absolutely necessary]; but the question might not prove unworthy the attention of scholars—whether the effect of *attraction* in forms of speech is not fairly comparable in principle and extent with that of association in modes of thinking; and whether to its influence, which is a power of Nature herself, a considerably greater amount of the symmetry of language be not probably due than has been adequately assigned to it."

With Dominie Sampson, we exclaim *Prodigious!*—Now, for the newly-invented definition of *zeugma*.—

"Zeugma is a figure which assists the compendium of speech by expressing only one verb, *noun*, or adjective, as connected with two or more clauses of a sentence, where the sense requires, *and will easily supply*, a separate term of the given class to each. The temptation is strong to add—'and is itself to be referred to the more universal principle of *attraction*.'"

The Latin verses at the end of the volume, which obtained the acknowledgment of a gold medal from the King of Prussia as well as a college prize, are very creditable on the whole. A few lines—as might be expected—want finished elegance; and the verse 'Nostra dum nemo temere lacessat,' in the imitation of Horace's 'Carmen Seculare,' is hardly correct. The lengthening of the last syllable in *temere* is a stretch of poetical licence. The designation of socialists as "Nomen sociale lædens factio simulata juri," which is rendered in the notes, a party "outraging the name of social—*i. e.*, by assuming the designation of Socialists"—is by no means happy. Before concluding, we must mention one of Mr. Murray's "original views" that really deserves to be so named,—which is, that Horace more nearly resembles Burns, "the unartificial bard, the unsophisticated philosopher," than any other subsequent poet.—It is right, too, that everybody should know that we are indebted to the writer of this work for the accidental discovery of the birthplace of the Duke of Wellington.

The Dramatic Works of Don Antonio Gil y Zarate—[*Obras Dramáticas, &c.*]. Edited, with a Biographical Sketch, by Don Eugenio de Ochoa. Paris, Baudry; London, Dulau.

In a late notice of the dramatic works of Hartzenbusch, we attempted to throw some light on circumstances, affecting the modern Spanish stage, which may have partly influenced and partly been promoted by the authors who have successfully written for it during the last twenty years. On the present occasion, therefore, when speaking of another, not the least distinguished of these, we need not retrace the same ground; but shall at once begin with the dramatist himself, presuming that the reader may still bear in mind what has already been said of the theatre to which he belongs:—some tendencies of which specified in a former article are clearly visible in all the stage pieces of Señor Gil y Zarate. The influence of the French drama pervades his works more deeply than those of Hartzenbusch: and this not from a single school only. With an impartiality which bespeaks systematic rather than spontaneous composition, he has successfully borrowed from both. In his earlier comedies the spirit, if not the form, of the last century prevails,—his most successful tragedy carried to an extreme the worst perversions of Hugo; and throughout his other serious dramas, with more or less admixture of romantic effects with classic declamation, the tone of the French stage is always distinctly heard. His latest pieces, comic or melo-dramatic, inferior in merit to their predecessors, resemble them by constantly reminding us of the theatres of Paris.

Necessity, not choice, made Señor Gil a dramatist:—his favourite pursuits lay in quite another direction. Until his twenty-seventh year he devoted himself entirely to the exact and physical sciences; his ambition being, a professor's chair in some university. This contrast between his early wishes and his later way of life is the more noticeable, as both his parents were actors on the Madrid stage; being members of a theatrical company which used to play during the Court season at San Lorenzo del Escorial, where he was born in 1793. That the father, Bernardo Gil, was in some respects above the common standard of his profession, appears from his having had both the means and the will to send Antonio, at an early age, to France, with the view of there acquiring a better education than Madrid could afford. The youth remained at the college of Passy until he was eighteen,—having distinguished himself in the mathematical studies prevailing there, as well as in French belles lettres. During this period, however, he gradually lost the use of his native language; and, like Larra, returned home (in 1811) to learn it nearly as a stranger might.

How long the father of young Gil lived after this period we are not informed; but it seems probable that for some time at least the former supplied his son with the means of devoting himself at Madrid to the physical sciences,—which he diligently followed, in the hope of obtaining a college professorship. His studies for this purpose, which was kept in view for nearly ten years, did not, however, exclude more elegant pursuits,—he "being persuaded that a man of mere science is but a poor creature," and encouraged to adopt a liberal scheme of culture "by the examples of Laplace, Biot, Cuvier, and others, who were not less honourably distinguished among men of letters than profoundly versed in their respective branches of science." Accordingly, part of his leisure in the interval between 1815 and 1820 was given to various small experiments in dramatic composition; and he translated from the French several plays, of which some were performed at the theatre *de la Cruz*. It thus appears that the impulse as well of his lighter as of his more serious employments was communicated from abroad. The models which he sought to imitate, whether in science or in literature, were those which a French education had taught him to admire.

The revolution of 1820 defeated his scientific plans, and changed the entire course of his existence. During the short rule of the party of the Cortes, Señor Gil, seeing all hopes of a Granada professorship vanish, took service under the new Government; and on its overthrow in 1823 was compelled to hide himself in Cadiz,—the only city in Spain where a partisan of the "liberals" could then safely reside. Here, necessity first commanded him to use his pen

as a means of support. His earliest comedies, 'The Busybody' (*El Entremetido*), 'Mind which you marry' (*Cuidado con las Novias*), and 'A Year after Marriage' (*Un Año despues de la Boda*), were written for the Cadiz Theatre; but soon afterwards found their way to Madrid, and were represented there with success before the author had obtained leave to return thither. This permission, however, was granted him in 1826.

From this period, he chose literature for his settled profession. The times, indeed, were at first unpropitious to such a career; and for awhile he was fain to give up all hopes of dramatic writing, and became a teacher of French in the Commercial School. The legitimist reaction had placed a severe censorship in the hands of ignorant monks, stupid as well as capricious; and while their reign lasted there could be no hope for any free dramatic composition of the better sort. The rule of blind absolutism, however, could not long be maintained in its worst extremity. Señor Gil meanwhile, amidst his labours as a teacher, betook himself to political essays. As a writer for the journals, and afterwards as editor, he contrived to reconcile himself to the men whom the changes of politics brought into power,—and in 1835 was rewarded by a small post in the administration. About this time the stage, which for many years past had been in the lowest condition, depending chiefly on wretched and mutilated translations from the French, began to revive a little. The removal of the notorious censor Padre Carrillo had encouraged native authors to raise their heads again; and among these Señor Gil re-appeared on the Madrid theatre with his first tragedy, 'Blanche de Bourbon.'

At this season of revival the literary world of Madrid, still taking its lessons from abroad, was divided between the rival parties of classicism and romanticism, then in full conflict at Paris. 'Blanche de Bourbon,' although not a strictly classical play, was composed in the decorous manner and with the pompous rhetoric of the old school; and obtained a success in which the zeal of its partisans may have had some share. But it had a better claim in the eloquence of its diction and in situations pathetic or striking, which rose above the standard familiar to Madrid audiences in modern pieces of native growth. It seems, however, that the author was piqued by reflections from the romantic party as to the cause of the favour shown to his work; and for this reason in his next, 'Carlos II. *el Hechizado*' (the bewitched), he made a glaring caricature of the Hugo school. The piece naturally produced a great sensation. It was full of horrors and "*émotions fortes*"; and in departing as far as possible from the style of its predecessor, it furnished matter enough for personal censure and for literary debate. As a work of dramatic art it cannot be praised; and the author, who had so lately distinguished himself in a different vein, could not be forgiven for any violation of poetic decorum or correct taste on the plea of impulse or of inexperience seduced by irresistible novelty. The choice, under the circumstances, was evidently a calculated one,—and of all extravagancies those which are deliberate are the least excusable. That the play is not wanting in strength—that it abounds in such lurid effects as may be produced by exhibiting whatever is most hateful, cruel, and desperate, in the well-known manner of a morbid foreign school—may be allowed. But whatever might be granted to the author for his readiness in following or outdoing his French models, could be conceded only at the expense of his judgment; and it was apparent that the pen which so easily ran from one extreme to its opposite could be no instrument of sincere poetic feeling, however dexterous its performances might be called. This incident, in fact, only brought out in the utmost relief a character or condition which may be discovered through all Señor Gil's dramatic writings. They are such as an apt and cultivated intellect, with a language at its command which almost spontaneously runs into melodious numbers, may be supposed capable of producing by forethought and practice, without the aid of that inspiration which makes the true poet. Their basis is prosaic,—they are the performances of an author by determination rather than by destiny,—and in this description their character agrees with what might have been expected from the manner of their birth. Had circumstances been favourable to his wishes, Señor Gil would have distinguished himself as a man of science, with an elegant taste for letters indulged as an occasional relaxation and as a graceful ornament to severer studies. The fates willed it otherwise; bidding him rely for his principal support on resources which Nature meant to be secondary. We may rather wonder that in this reading backwards of his proper destiny he should have acquitted himself so well, than complain of his want of certain endowments—which are supreme favours of a Muse that endures no rival in the heart she condescends to warm.

Indeed, in the ease and proficiency with which Señor Gil exercised a calling far from his original choice, we are rather glad to recognize a proof that the abundance of the Spanish soil, so richly displayed in former days, is not yet exhausted. The vivacity of mind which in the seventeenth century covered many noble Castilian brows with the triple wreaths of soldiership, policy and literature, may still be traced in the promptitude with which this modern author, forsaking his scientific inquiries, could turn from mathematics and chemistry to win no trivial honour in the fields of scenic fiction. We may not call his productions poetical in the strictest sense of the term; but if rated by comparison with those of contemporary Spanish poets, they will be found to reach the full standard of those among them who have had no other calling. In no other country, we apprehend, would the compositions of an author driven at mature age from mathematics into poetry bear so creditable a proportion to the best fruits of others of his own time whose whole life had been dedicated to works of fancy.

It is creditable to Señor Gil that he made no second attempt in the ultra-romantic manner of Young France. His next drama, '*Rosmunda*,' (on the story of our Fair Rosamond,) usually deemed his best, written in verse, and in a chastened and tender style, was probably designed as an expiation for the sin against good taste and his own better judgment which he had committed in writing 'Charles the Second.' The conclusion of '*Rosmunda*' is not tragical,—the legend having been altered, to allow of Rosamond's escape with a forgiving lover, after bidding farewell to Henry;—whereupon the monarch is reconciled to his jealous queen. There are some pathetic scenes, but the characters want dramatic truth. The royal lover is contemptible; while Eleanor is not only hateful, but sentimentally inconsistent. The language in this, as in Gil's subsequent works, is graceful and nervous;—and the composition, altogether more compact than is usual in Spanish playwrights, shows the more favourable side of his Parisian training,—and, it may be, some vigour derived from the graver studies of his youth. After '*Rosmunda*,' he produced '*Don Alvaro de Luna*,' a tragic melo-drama, and '*Guzman el Bueno*,' a regular tragedy,—both on well-known Spanish subjects. The former, with much variety and animation in the characters, excites a lively interest; in the latter, the monotony of a narrow and hopeless subject, the catastrophe being felt from the beginning, is unfavourable to dramatic treatment. The declamations of the mother, whose son is sacrificed to a father's loyal fortitude, are eloquent; but even their effect palls by reiteration. In the drama '*Un Monarca y su Privado*,' the subject, supplied by the prosperity and fall of Olivarez, is involved with the dangers and discovery of an unrecognized daughter, in a manner which comes somewhat nearer to the intrigue of old Spanish comedy than in any other of Señor Gil's pieces. But the idea of a favourite, in order to secure his command of the king, pandering to his illicit designs on a maiden, who proves to be his own daughter, is one that the poetic feeling of Old Castile would not have endured:—it rather belongs to the region which gave birth to '*Le Roi s'amuse*.'

Of other considerable pieces, more or less serious in tone, little can here be said. '*Masanielo*,' a play on the subject well known by Auber's opera, is rather turbid and noisy than effective:—it was not, and scarcely deserved to be, successful. '*Matilde*,' a melo-drama, is wholly French,—so is a sentimental drama, '*La Familia de Falkland*,'—both closely drawn from Parisian patterns. In this, as in other instances, we are strangely reminded of the decline of invention in a land which was once distinguished above all others by the abundance of that poetic gift. In the seventeenth century, Spain furnished the best subjects for plays and novels to all her neighbours:—from Corneille to Scarron and Marivaux, from Beaumont and Fletcher down to Centlivre, the fertility of her conceptions was a sure resource for the authors of France and England. She is now reduced to seek the assistance which she once imparted. Such are the vicissitudes of national genius!

Among Señor Gil's latest productions are some trivial comic pieces:—these will not be read with much pleasure. The subjects, taken from modern life in Madrid, are rather contemptible than diverting; and their exhibition is not sprightly enough to conceal the poverty of their motives and characters. In these, as also in some of the plays of more pretension above named, the author's vein of invention had begun to flow more languidly than in his earlier pieces; and their fate on the stage seems to show that this was felt by the Madrid public. Señor Gil had already in good measure withdrawn from the theatre, into the soberer walk of prose writing, when one of those changes in politics common in Spain suddenly brought into office an old friend of his,—who, with a quickness of friendly remembrance not so common, at once applied his new power to Señor Gil's advantage. In 1843, namely, when Firmin Caballero became a minister, he made his sometime colleague in the *Boletin del Comercio* his secretary. This good fortune was followed by new promotion to higher duties,—in the departments of Public Instruction and of Works,—which Señor Gil was still discharging with general approbation—as we heard—at the end of 1849. The unexpected elevation to office of course concluded his literary career:—which may thus be termed singular as well in its close as in its beginning,—and deserving more than common notice by the talent, if not genius, with which it was taken up and followed to eminence, against the bias of natural inclination, at an age beyond the pliancy of youth, and in times far from propitious.

OUR LIBRARY TABLE.

The Mirror of History; or, Lives of the Men of Great Eras, from Julius Cæsar to William the Conqueror. By the Rev. Edward Bridge.—Here is a great topic treated in a very flippant and superficial fashion. How can Mr. Bridge profess to give a reflex of History if he goes no farther back than the time of Cæsar? Nothing was beginning when he lived. Much was dying out, and still more perhaps was changing at the period; but to make it the starting-point of a survey intended to develope a philosophy of history is a chronological absurdity. Of the Twelve Eras into which he divides the (nearly) twelve centuries which elapsed between the birth of Cæsar and the death of William the Norman, the first is divided from the second only by the imaginary line caused by the death of the first Cæsar and the elevation of the second,—the third is the conquest of Judea,—the eighth, the conversion of the Saxons in England,—the eleventh, the foundation of the English monarchy by Alfred! In other respects we do not recognize in Mr. Bridge the knowledge and political sagacity which are necessary to the historical biographer. He gives few notes or references, and his materials appear to have been gathered from any quarry lying near at hand.

Smithfield and Newgate Markets. By the Hon. F. Byng.—"Feed on the slain, but spare the living brute," says Cowper in a line which Mr. Byng uses as an epigraph for the title-page of his able and—if there be any one still unconvinced of the abominations of Smithfield—convincing pamphlet. Fearing that the Report of the Commissioners on Meat Markets may not be sufficiently read by the public, nor the facts which it contains made generally known, Mr. Byng has here reproduced the principal points of the evidence there given at length, and appended to them such observations of his own as seemed to be required for their complete understanding.

The Legend of St. Peter's Chair. By A. Rich.—As the sound of Lady Morgan's light artillery dies away on the pleased and palpitating ear, Mr. Rich, known to our readers as one of the best classical antiquaries of the time, brings his heavy guns to bear on the devoted chair of St. Peter's and the luckless advocacy of its Cardinal defender. The subject is hardly worth the good labour and profound learning here bestowed on it; but we think nothing less than ocular demonstration will ever convince the reader of this pamphlet that MM. Denon and Champollion were wrong in the statements made to Lady Morgan regarding the nature of the so-called "Apostle's chair."

Dealings with the Inquisition; or, Papal Rome, her Priests and her Jesuits, with important Disclosures. By the Rev. Giacinto Achilli, D.D.—This is not a book for our handling. The theme is entirely one of sectarian strife and bitterness,—and therefore unsuited to the calm world in which we live and labour.

The Unscriptural Teaching of the Church of Rome compared with the Prayer-Book of the Church of England. By Thomas Dowell.—A book and a subject lying outside of the province in which we undertake to discharge the duties of criticism.

The British Squadron on the Coast of Africa. By the Rev. J. Leighton Wilson.—Mr. Wilson—an American missionary—for many years a resident on the Gaboon river, near the Equator, on hearing that a parliamentary inquiry was about to be made in England as to the success or failure of the African blockade in the special objects which its friends had in view, prepared a Report, of which the pamphlet now published is a copy with additional notes, to be addressed to the Committee on the subject. The writer advocates a continuance of the blockade. His point of view is peculiar,—and his arguments, though inconclusive, are worth attention.

Notes of a Residence in the Canary Islands, the South of Spain and Algiers. By the Rev. Thomas Debarry.—For a man who has travelled at his leisure through some of the most beautiful scenery and lived at his ease among the most picturesque people in the Old World, Mr. Debarry has contrived to bring back about the least life-like or striking set of impressions that we remember in the course of our reading. The wild waves which roll among the Canary group are with him but so much green water; in his eye the Moorish glories of Seville are as pale as the new whitewash of Camberwell—the plains of Andalusia become as prosy as Hounslow Heath. We search in vain for any touch of sentiment, any genial glow, any sense of the picturesque. Mr. Debarry has some notion of illustrating the state of religious opinions and practices in the various cities which he has visited; but on closing his volume our impressions on this point, so far as they are derived from his observations, are as vague as ever.

Catechism of Fortification. By Thomas Hodge.—This little work, designed for the use of students preparing for the examination required by the rules of the service, is written by a practical man and is issued under a semi-official form:—sufficient guarantee, we suppose, of its fitness and accuracy.

Domestic Pets: their Habits and Management, with Illustrative Anecdotes. By Mrs. Loudon.—The domestic pets here treated of include dogs, cats, squirrels, gold-fish, parrots, canaries and other singing birds, monkeys—with a half protest against their claim to be considered as "pets,"—doves, rabbits, guinea-pigs, white mice, and fancy pigeons. Of all these feminine delights Mrs. Loudon writes in a pleasant, gossipy way:—and she enlivens her narrative with numerous and curious anecdotes.

A complete Description of St. George's Cathedral: a Handbook to the Catholic Antiquities of Southwark. The text of this foolish pamphlet is written in about as bad taste as we remember to have met with in the polemics connected with Art; and the drawings and illustrations which accompany it are about as wretchedly lithographed. We can in fairness say no less,—and we will in tenderness say no more.

The Philosophy of Ragged Schools.—This volume forms the new issue of Mr. Pickering's series of "Little Books on Great Subjects." The writer entertains a higher opinion of the usefulness of ragged schools than is at all common,—and his opinions seem to be founded on a conscientious inquiry into the subject. His "Philosophy" is summed up in the words—educate, prevent. He takes a darker view of the state and progress of crime, ignorance, and poverty in this country than the facts of the case justify; but this exaggeration, as it does not essentially affect the main argument, need not prevent his work from making a due impression on every class of thoughtful readers and reasoners.

The Commercial Aspect of the Great Exhibition. By W. Felkin.—Mr. Felkin is engaged in commerce, and is mayor of the important manufacturing town of Nottingham. He writes like a man of cultivated taste and good feeling as well as like a man of business; and although there is no particular novelty in his views with respect to the consequences of the Exhibition in Hyde Park, there is a calm and solid sense in what he says which will probably speak home to the intellects of his own order.

Among the reprints and new editions lying on our library table, we have a sixth edition of Mr. Joseph Bentley's *Health made Easy for the People,* with thirty illustrations; the first volume of a reprint by Messrs. Routledge of Bancroft's *History of America;* a second edition of Mr. J. W. Rexford's *Epitome of English Grammar;* ditto of Mr. S. C. Brees's *Key to the Colonies, or, Advice to the Million upon Emigration;* a new edition of *The Greek Church,—a Sketch,* with a supplement *On the Doctrine and Discipline of the Greek Church.*—*A Practical Treatise on the Law, Privileges, Proceedings and Usage of Parliament,* by T. E. May, Esq.—*The Young Officer's Companion,* by Col. Lord De Ros.—*Letters on Chemistry,* by Liebig.—Reid on *The Steam Engine.*—A ninth edition of Black's *Picturesque Tourist in Scotland;* one of a useful series to which the publishers have lately added *A Picturesque Guide through North and South Wales.*—Mr. Mitchell's *Newspaper Press Directory,* and Mr. Churchill's *London and Provincial Medical Directory.*—To the 'Parlour Library' have been added *Henry Masterton* and *Gowrie,* by Mr. James, and *Mansfield Park,* by Miss Austen.—To Mr. Bohn's 'Standard Library,' *The Cape and the Kaffirs,* by Harriet Ward.—To the 'Railway Library,' *Whitefriars; or, the Days of Charles the Second,* and to Mr. Bentley's 'Standard Novels,' Maxwell's *Fortunes of Hector O'Halloran.*—To which titles we may add, as not calling at this time for detailed remark at our hand—*An Appeal from Earl Grey and Sir William Denison to British Justice and Humanity, against the proposed Continuance of Transportation to Van Diemen's Land; in a Letter to the Liberal Press of the Nation (with Petitions and an Appendix).* By C. G. Stevens,—and the *Sixteenth Report of the Inspectors appointed to visit the different Prisons of Great Britain:* 11. *Northern and Eastern District.*

BOOKS FOR CHILDREN.—If we are somewhat in arrear with these interesting publications,—the Koh-i-noor,—the Spanish table, the Lyons silks, the egg-shell China, the Indian shawls, the Italian sculpture, and the Manchester machinery in Hyde Park, must bear the blame,—for these have made up the school, the library, the play-ground, for young no less than for old, during the past three months. Nor will the caterers of print and paper suffer—but the contrary—from our delay: since, after so much excitement, a little quiet reading may be felt as doubly welcome. When the appetite for this shall be "on the turn," parents and guardians will do well to look out for *Recollections of Mrs. Anderson's School, a Book for Girls,* by Jane M. Winnard, as a wholesome, entertaining, and probable record of what no two scholars will describe alike. Miss Winnard has long been esteemed as an anonymous writer for the young; being amiable, without dreams of impossible perfection, and though reasonable, neither harsh nor arid. Her clients will enjoy this book, because there is in it so much sympathy, and so little of the Schoolmistress.—Of totally different quality—approaching in tone and tendency to the faëry tales of Andersen—is *The Fairy Godmothers, and other Tales,* by Mrs. Alfred Gatty—most commendable as a faëry-book, with a beautiful frontispiece illustration by an amateur artist, Miss L. E. Barker.—A story to be mentioned with the above, though hardly their equal, is *Clara Evesham; or, the Life of a School Girl: a Narrative founded on Fact,* by Harriet D'Oyley Howe.—*The Village Astronomer; or, the Kalendar-Man of Veitsberg,* by the author of 'Anna the Leechvender,' from the German, by Matilda Wrench, is addressed to readers of somewhat maturer capacity than those aimed at in the foregoing publications. The tale is well told, and has a value as containing glimpses of manners, &c., far different from those of our own England. But with these, we also get a glimpse at a phase of society so perpetually presented to us in foreign tales of this kind, that it is their fault if we dwell on it for a moment as a national peculiarity,—being solicitous that none should accept it as a condition of universal humanity. 'The Village Astronomer' is represented as persecuted throughout his life by an enemy—a calumniator who systematically, and without other motive than that of vengeance for a very old offence, traduces and tries to ruin him. We can bear with malignity like this if encountered in a romance or in a tragedy, but demur totally to its being depicted as one of the average evils of life and adventure to which the righteous are exposed. On a literature that generates suspicion, imputation of the worst motives, &c. for the purpose of exalting the sanctity of the elect few, we do not desire that the young people of England should be nourished.

LIST OF NEW BOOKS.

Adams's Guide to the Watering Places of England, 12mo. 2s. 6d. cl.
Aimé Martin On the Education of Mothers, post 8vo. 7s. 6d. cl.
Alexander's (J. A.) The Psalms Translated and Explained, 24s.
Arthur's (T. S.) Retiring from Business, 32mo. 1s. 6d. cl.
Bellamy's (Dr. J.) Works, with Memoir, 3 vols. royal 8vo. 28s. cl.
Black's Picturesque Guide through North and South Wales, 5s. cl.
Black's Picturesque Tourist of Scotland, 9th edit. 12mo. 8s. 6d. cl.
Blyth's (Rev. G.) Reminiscences of Missionary Life, fc. 4s. cl.
Clara Cameron; or, the Belle of the Season, 3 vols. 1l. 11s. 6d. bds.
Clarence Leighton; or the Outcast, a Novel, by F. H. Sanders, 5s.
Cobbett's (Anne) The English Housekeeper, 6th edit. 12mo. 6s. cl.
Curran and his Contemporaries, by C. Phillips, 8vo. 12s. 6d. cl.
Dana's (J. D.) Manual of Mineralogy, new edit. post 8vo. 7s. 6d. cl.
Davidson's New Testament, Vol. 3, 'Timothy to Revelations,' 15s.

Delille's Répertoire des Prosateurs Français, 5th edit. 6s. 6d. bd.
Demosthenes' Oration on the Crown, English, by Norris, 3s. swd.
Downe's and Cooper's The Building in Hyde Park, Part 1, 4to. 6s.
Edinburgh Cabinet Library, 'Tytler's Henry the Eighth' and 'Life of Raleigh,' new edits. 4s. 6d. each.
Food for Babes, by the Rev. D. B. Bevan, 3rd edit. 12mo. 3s. cl.
Gilpin's (Rev. W.) Memoir, with Extracts, 8vo. 10s. 6d. cl.
Greatley's (T.) Philosophy in the Fens, a Poem, cr. 4to. 7s. 6d. cl.
Hindmarsh's Precious Stones; Account of Stones in Scripture, 2s.
Hopkins's Figures illustrative of Geometrical Optics, 10s. 6d. swd.
Jelf's (W. E.) Grammar of Greek Language, 2nd edit. 8vo. 30s. cl.
Kemp's (E.) The Parks, Gardens, &c. of London, 12mo. 5s. cl.
Lady and the Priest, a Novel, by Mrs. Maberly, 1l. 11s. 6d. bds.
Lectures to Young Men, 1850-51, fc. 3s. 6d. cl.
Lees's (E.) Botanical Looker-out, 2nd edit. revised, post 8vo. 8s. 6d.
Leyburn's (Rev. J.) Soldier of the Cross, 2nd edit. post 8vo. 7s. cl.
Library for the Times, 'John Milton, by C. R. Edmonds,' 2s. 6d. cl.
Loth's Elementary Speaking French Grammar, 12mo. 2s. 6d. bds.
Marks's Sermons at West London Synagogue, Vol. 1, 8vo. 7s. 6d. cl.
Maria Monk's Awful Disclosures, 3rd edit., by Slocum, 18mo. 3s. cl.; and Confirmation of ditto, by Slocum, 2nd edit. 18mo. 2s. cl.
Monthly Packet of Evening Readings, Vol. 1, fc. 3s. 6d. cl.
Oliphant's (G. H. H.) Law of Church Ornaments, post 8vo. 5s. cl.
Overman's (F.) Practical Mineralogy, Assaying and Mining, 4s. 6d.
Oxford Pocket Classics, 'Tacitus,' 2 vols. 18mo. 5s. cl.
Poussin's (G. T.) United States, its Power and Progress. 14s. cl.
Pollin's Narrative of Five Years at St. Saviour's, Leeds, 12mo. 4s. 6d.
Popular Library, 'Hazlitt's Shakspeare, Part 5,' fc. 1s. bds.
Prince's (J. C.) The Poetic Rosary, fc. 2s. 6d. cl.
Reid's (Capt. M.) The Rifle Rangers, 2 vols. post 8vo. 15s. cl.
Roger Miller, by G. Orme, 2nd edit. fc. 1s. 6d. swd., 2s. cl.
Ryan's (W. R.) Personal Adventures in California, 2 vols. 18s. cl.
Staffa and Iona Described and Illustrated, 12mo. 2s. 6d. bds.
Standish's (E. J.) The Pastor's Family, fc. 3s. cl.
Upham's (Dr. L. C.) Treatise on Divine Union, post 8vo. 8s. cl.
Usborne's (T. H.) The Jesuits, their Rise and Progress, 18mo. 2s. cl.
Weld's (Rev. H. H.) Dictionary of Sacred Quotations, 7s. 6d. cl.
Wilson's (D.) Christian Character Illustrated, 12mo. 2s. 6d. cl.
Young's (J. R.) Introduction to Algebra, 12mo. 2s. cl.
Zornlin's (R. M.) Outlines of Physical Geography, 18mo. 10d. swd.

THE IRISH CENSUS.

IRELAND has long been a mystery and an anomaly in the west of Europe. When it had existed for four centuries in a chronic state of anarchy and rebellion, the country was almost depopulated under the last of the Tudors and the first of the Stuarts. After the savage and sanguinary Rebellion of 1641, it was conquered and chastized by Cromwell as few countries in historical records have ever been; and in the next generation the arms of the Prince of Orange again swept the land of its ill-fated inhabitants. If the returns made by Sir William Petty and Capt. Smith may be trusted, the population fell one-fourth between 1672 and 1695. During the fifty years then drawing to a close, a large and influential settlement of English took place in the north. Manufactures were introduced by these new and industrious settlers; the old population was governed by the strong arm of authority; and, strangely enough, after the war with William, as had been the case after that with Cromwell, the country rose out of its depth of poverty and misery, agriculture and trade revived, and the counties of Ulster—hitherto a wild and desolate region—began to assume something of the appearance of Kent and Norfolk. Between 1695 and 1754, the population increased from 1,034,102 to 2,372,634. From this time there was a steady increase, the numbers for 1791 being returned in the hearth-money estimates at 4,200,612,—and those in the first census, that of 1821, at 6,801,827. From 1821 to 1831, the progress of population was rapid in the extreme for Ireland—the rise being no less than 965,574 souls, or about 14 per cent., in the decade. This, however, was the period of greatest increase. Between 1831 and 1841, the sum total of the increase fell to 407,723,—or about 5¼ per cent. In the last decade, just published in the census returns, we have the astounding result—not merely of a failure to maintain the old rate of progress, but of a vast positive decrease in the population. In 1841, the population of Ireland was in round numbers 8,175,000;—it is now, for 1851, returned at 6,500,000.

At first sight, these figures seem to tell an incredible tale. They startle belief by the novelty of the facts which they indicate. In the English mind, progress has become of late years an apparently fixed law of nature; and on finding a bold and emphatic denial of that onward rule in close proximity to our own shores, and in a country bound to us by so many ties, we feel our ideas rudely and painfully shaken. From the Caucasus to Norway, from the Ural Mountains to the Pillars of Hercules, there is probably no example of a similar decline on any large geographical surface during the last ten years. With all their revolutions, civil wars and bombardments, France, Germany and Italy have not suffered like Ireland. Disease has inflicted severe losses on several large cities of the Continent, and ravaged the lines of many navigable rivers,—fire and sword have scattered the population of fortressed towns like Arad, Brescia, Rastadt and Mantua,—but the aggregate quantity of human life has not been reduced to a large extent in any of these countries. In Ireland, not less than a quarter of the inhabitants has been cut off or removed in ten years—a fact with hardly a parallel in history. Cromwell's destroying sword and inexorable policy were as nothing to the more effective causes which have recently been in operation. His stormings and forced expatriations cleared the soil of some thousands,—the new victims of poverty, cholera, famine, fever, despair and emigration are to be counted by millions!

The causes of a result so painful to our pride as a nation, so repugnant to our feelings as members of a civilized and progressive community, should be made the subject of serious inquiry and consideration. The chief of these causes are only too obvious:—cholera, the potato blight, and emigration. But we have no distinct evidence as to the share severally to be ascribed to these agencies in the diminution now recorded. The population in 1841 was 8,175,124; according to the rate of progress observed in the twenty years previous—that is, from the first taking of the census up to 1841—it should now have been within a very small fraction of nine millions. The actual return shows a falling off from this number of two and a half millions—which deficiency requires to be accounted for in some way. The first question in point of moral interest which occurs on considering this grave fact is, what proportion of the difference must be set down to death, what to emigration? That famine and disease have been at work in the unhappy island is but too well known; but that any very large share of the two and a half millions is to be ascribed to their agency we shall be unwilling to believe until the evidence is collected. The idea is too painful. The plague, the black death, the sweating sickness never had such a banquet. Inquiries should, however, be instituted, and the truth ascertained. The past is the beacon light of the future, and out of the records of one most terrible calamity, science should extract uses for the coming generation. In the meanwhile, we shall not incur the chance of straying far from the truth if we presume that the chief influences which cholera and famine have exercised on the state of the population in Ireland have been indirect—by inducing the middle-aged, able-bodied, tolerably well off, and enterprising to quit the land of famine, pauperism and disease, and seek their fortunes in some other country—more particularly in the United States.

It is usual with historians to consider the Migrations of Nations as long since past. These ages, they say, are characterized by the fixed settlement of populations. This proposition is in direct face of the facts. The movement of people was never before so vast, wide spread, and continuous. More Celts now invade England every year than the entire Norman immigration. Every year there is a greater number of foreigners thrown on the shores of the United States than perhaps ever rolled down in the same period as conquering hordes upon the plains of Italy. It is doubtful whether a quarter of a million of Saxons, Jutes and Angles poured into Britain during the four hundred years which the Saxon invasion may be said to have occupied. Between 1841 and 1851 Great Britain sent to America alone not less than 1,600,000 souls! The Franks, who gave a new name to ancient Gaul,—the Saxons, who brought their habits and idioms into Roman Britain,—the Goths, who overran the Imperial provinces—all rolled south and westward in comparatively speaking small waves and streams, like the flow of population into our great eastern colonies. In history we catch the decisive points—the great sacks, burnings and battles; but the influx and the settlement of the intruders were the work of centuries. At no time in history was there such a vast migration as at the present; but the wilds of nature in Australia and America, not the over-cultivated plains of Italy, Iberia and Gaul, are now the bournes of travel. The fight is with the wilderness and forest, not with city and civilization. Until recently this movement of races had been almost confined to men of Teutonic origin. The French have colonized but little, and the Celtic provinces of France scarcely at all. But the same race in Ireland have now become the most restless of nations. It is supposed that out of 1,600,000 persons who have quitted the ports of England for America in ten years, 1,100,000 are of Irish birth. There are now in the United States about 3,000,000 souls of Irish birth or descent,—that is, about half as many as still remain in the old country. Should the movement continue unabated for twenty years more, half the Celts of Ireland—with their labour, their turbulence, their poverty, and their clannish spirit, will be on the other side of the Atlantic—for the Republican Government to deal with. But it is profitable to remember that in America the Celt is an improveable creature. He is there less lazy, less ignorant, less quarrelsome than in his native land. In two generations he loses his distinctive type: he ceases to be a Celt. He rises gradually into an American—in habits, in style of thinking, in political views, and often in religion. In English towns and villages the Irish are a race apart—as much so as the Jews are abroad, or the Gipsies at home. America seems to be the true transforming land of the Celt:—and the Celts are removing thitherward.

THE POET'S WEALTH.

"WE are not poor, old friend, though years
Of toil have brought us only bread,
And such small shelter as appears
Most like a passing pilgrim's shed;
Though the world's glory and its gold
Have passed us by as wights obscure,
Our liberty was never sold
For them or theirs—we are not poor.

"Wealth cannot buy nor custom bound
The thoughts that give us regal days,
Through many burdens and the round
Of petty wants and worldly ways.
The glimpse of truth which makes us free
To know the right from power and gain,—
However crowds or creeds may see,
We have not trimmed that lamp in vain.

"Its light hath scattered many a dream
That hid the poverty of life,—
And showed how near the clay-mark came
Its baseless lore, its bootless strife.
We had a hope of better things,
Perchance it might not long endure
The knowledge that each dark year brings,—
Yet for its sake we are not poor.

"Time has not mocked us with the smile
And hush for which his vassals wait;
But we have learned in spite of toil,
And we have climbed in spite of fate.
Woe worth the wanderings and the wars
Wherein our souls so grey have grown,
And ill befall the luckless stars
That made us strangers to our own!

"And yet we found us friends among
The earth's great thoughts and names,—and grew
As of that race by page and song
Even lenders to the nation, too.
Their homes that rest in fortune's lights,
Their crowds of graves and burdens sure,
Are debtors to our sleepless nights,—
Cheer up, old friend, we are not poor.

"Alas the fruit is small beside
The early promise of our field!
Yet let the few full ears abide
To tell what might have been its yield
Had life some better harvest lent
Than those that make our memory old,
Of faith found false, of hope grown faint,
Of friendship turned unkind and cold.

"The waters will not render back
The bread cast on them to our age,—
Well, friend, it was but crumbs, and not
The riches of our heritage.
In thought, and song, and summer skies,
Its changeless wealth lies yet secure,
Though wastes of care and work-days rise
'Twixt us and it—we are not poor.

"That goddess of the common faith
Whom all invoke and many blame,
What though for us her quiver hath
But shafts that never miss their aim,—
We mourn for ills she never brought,
We joy in goods she cannot steal,
Yet woe for some whom fortune bought
And made them bondsmen of her wheel!"—

The voice that spoke was free and clear,
The heart had little left to lose,—
And they that kept such kindly cheer
Were but a Poet and his Muse.
Perchance he sought no other mate,
Perchance his fortunes could allure
None else to share the bard's estate,—
Yet with that friend he was not poor.

FRANCES BROWN.

Edinburgh.

THE TOTAL ECLIPSE OF THE SUN.

THE total eclipse of the sun which takes place on the 28th inst. excites so much attention, that I hope the following suggestions with reference to certain observations which may be made at stations in the line of the moon's shadow may possess sufficient general interest to find a place in your journal.

It is well known that at the total eclipse of July, 1842, a remarkable phenomenon presented itself; which, although it had been noticed more than a hundred years before, seems to have been generally forgotten, as its occurrence was quite unexpected by all who saw it. This was, the appearance of several rose-coloured flame-like prominences round the moon's disc about the moment when the sun became totally obscured. There is considerable discrepancy between the accounts given by different observers as to the number and position of these remarkable objects; and acordingly, some persons have doubted whether they have a real existence in the sun's atmosphere, or are merely the result of some optical illusion. It is therefore of the greatest importance that, if any red prominences be seen at the approaching eclipse, their number and position be accurately recorded.

In the "Suggestions" prepared by a committee of the British Association it is proposed for this purpose to make a sketch—or, if possible, to take daguerreotypes or talbotypes—of the sun, or of the light surrounding the moon when the sun is hidden. It has occurred to me that a method greatly more trustworthy than the former, and more generally available than the latter, would be, to determine the relative positions of the prominences by means of a sort of position micrometer which could be applied to any telescope mounted on a stand. The apparatus which I have to propose could be made in a short time and at a trifling expense; and would possess the advantage of not requiring any angles to be "read off" at the time of observation,—which is very desirable, since the total phase continues only about three minutes and a half. The micrometer would be made by fixing on the tube of a telescope, concentric with it, and perpendicular to its axis, a circular disc of wood, or other material, about six or eight inches in diameter, and covered on one side with pasteboard. The tube containing the eye-piece, which ought to admit of being turned smoothly round, should be furnished with two *springy* arms pointing in opposite directions in front of the disc, like the hands on the dial of a clock,—and carrying needle points, by which holes may be made in the card circle near opposite extremities of its diameter. The eye-piece should also have three parallel and equi-distant wires in its anterior focus, about 16·5 apart, so that the outer wires would nearly embrace the moon's disc between them. The method of observation would be, to get the moon's disc between the outer wires, while the middle wire was made to bisect one of the prominences, and then to prick holes in the pasteboard disc. The same could be done with each prominence in succession, without removing the eye from the telescope; and the holes in the disc being afterwards pricked off on a piece of paper, and the inclinations of lines drawn between the corresponding holes measured by a protractor, the angular position of the prominences on the sun's limb would be ascertained with sufficient exactness. The comparison of such observations taken at different stations, if they be found practicable, might completely determine the question whether the prominences are real objects or not.

The Committee of the British Association recommend an examination of the sun's limb before and after the eclipse for the discovery of conspicuous spots or faculæ, in order to ascertain if there is any correspondence between their positions and those of the prominences. The places of such objects might be determined by the position micrometer,- and it might be well to *practise* this sort of observation in order to acquire expertness, as well as for the purposes of comparison. If it be wished only to determine the *relative* positions of the prominences on the sun, any ordinary stand for the telescope will be sufficient; as the change in the upper point of the sun's limb, in the short interval to which the observations are necessarily confined, will not be so great as to make any serious error in the relative positions of the prominences as marked on the card. But if the positions of the prominences are to be compared with those of the faculæ or spots, an equatoreal, or an altitude and azimuth mounting would be desirable. Failing this, the telescope might be made to turn on an axis rendered as nearly vertical as possible; and the points of beginning and ending of the eclipse, and the disappearance and re-appearance of the sun might be bisected by the wire and marked on the card as points of reference. The times should also be noted when the observations of spots or faculæ were taken, in order to reduce all the observations to the same position of the sun's disc with reference to the zenith.

I am, &c. W. SWAN.

4, Duke Street, Edinburgh, July 9.

OUR WEEKLY GOSSIP.

TAKING advantage of the presence in London of a great number of distinguished statists, the Institute of Actuaries, desirous to collect further data and to compare opinions on unsolved points in the doctrine of probabilities, held a conference on Saturday last with a view to rendering the whole body of experience obtained in Europe and in America available for the general purposes of the science. The questions chiefly discussed at this gathering were the two following:—"1. What are the principal existing data, here and abroad, to which the doctrines of probabilities may be applied (with a view to organize systems of assurance), and from what sources can better be obtained? 2. What is the mean rate of interest prevailing, and likely to prevail hereafter, in this country and on the Continent?"—With the avowed object of laying the foundation of mutual knowledge and good fellowship between English and foreign statists, on the afternoon of the same day the members of the Institute gave a dinner at the Castle Hotel, Richmond, to which the guests of the nation were invited. The chairman, Lord Overstone, made an excellent statement of the means and aims of the science, and some other able addresses were delivered,—though there was certainly on the part of the speakers an occasional tendency to travel beyond the strict letter of their record. One gentleman, whom we will forbear from naming, took more of the attitude of a conjuror than befits an argument so arbitrarily controlled on every side by facts,—and spoke, in the calenture of his estimation, of the Actuary as a personage summarily wielding a power rather than slowly evolving a principle. This somewhat hurt the tone of proceedings which on the whole were highly interesting. That men should estimate at its best the art or science which occupies a considerable portion of their lives, and is, to some extent, the measure of their importance in the world, is natural; but the Actuaries must not forget that the power which a knowledge of results can give them is negative—not positive. A law is not an agent;—it governs,—and is not governed. The actuary who thinks that facts may become in his hands what gas, steam, and electricity have been in those of others indulges in a day-dream. His science is preservative and providential,—not creative. The Catalonians who discovered the periodicity of shipwrecks, learned to take and to give hostages against chance; but they did not, therefore, acquire the control of the elements. The insurances of character neither increase nor diminish crime,—nor are fires extinguished by the law of averages.—Certainly, however, these graduates in the mystery of tabulation could scarcely be supposed to need the lecture which Col. Sykes delivered to them on the elementary principles of their profession—illustrated by examples culled from the horn-book of the science. It was somewhat amusing to see the Colonel earnestly employed in instructing the parents and patriarchs of the Institute in the primitive process of "sucking eggs." We are glad to see the increasing interest taken in the practical application of statistical science. Every year raises it in importance. In America, statistics are a part of the fundamental law. The frequent numbering of the people is provided for in the Constitution. Authority is there based on number,—and the statist is the great distributor of power. On the Continent of Europe the principle of insurance makes progress daily. Life, health, fire, character, rents, transit of goods and person, debts, bills of exchange,—almost everything in which number and money form important ingredients,—come within the operation of insurance offices. In England, the amount insured on lives is not less than 150,000,000*l.*,—on fires, nearly 843,000,000*l.* In France fewer lives are insured than in England,—but the amount insured from fire in that country is 1,300,000,000*l.* The principle of life insurance has not yet taken very deep root in Germany,—but property is secured against casualties to a vast amount. In the United States, the number of insurances is rapidly augmenting.—The importance of concert and friendly communication among men charged with the care of interests so vast as these, is obvious; and we should infer from the tone of the meeting on Saturday, and from the cordial responses of the eminent foreign actuaries then present, that the recent proceedings of the Institute will have done much towards opening up a friendly intercourse between the statists and actuaries of all countries.

The Edinburgh papers announce the death, at Dumfries, of Dr. Moir, of Musselburgh, known to the public by a long stream of song, such as it was, which he poured perennially forth, under the signature of "Delta," in the pages of *Blackwood's Magazine*. In verse, Dr. Moir had the fatal gift of facility,—and he cultivated it at the ordinary penalty. His poetry is not made to survive him. He was a gentleman, however, of varied accomplishments; and is the author, besides his considerable body of verse, of a prose narrative, 'Mansie Wauch,' which appeared in the pages of the same magazine,—of 'Outlines of the Ancient History of Medicine, being a View of the Progress of the Healing Art among the Egyptians, Greeks, Romans, and Arabians,'—and of 'Sketches of the Poetical Literature of the past Half Century, in Six Lectures, delivered at the Edinburgh Philosophical Institution,' a work which has the sketchy character and incompleteness common to its class.—'The Legend of Généviève, with other Tales and Poems,' and 'Domestic Verses,' are the two poetical volumes of his which have been published in a collected form.

A few old friends of another Scottish poet, long dead—Mr. William Motherwell—have been erecting a monument to his memory in the city of Glasgow. It is the work of Mr. Fillans, the Scottish sculptor and friend of the deceased,—and is described as being "in the form of a small Gothic temple, which consists of a quadrangular pediment of solid masonry, supporting a light dome or canopy on four finely-proportioned pillars; the dome being tastefully decorated with carvings of shields and *fleurs de lis*. In the space between the pillars is a sarcophagus, on which is placed a termini bust of the poet, of beautiful Parian marble. On the front and sides of the pedestal are a series of spirited designs, carved in an effective though somewhat novel manner, and illustrative of the general characteristics of Motherwell's genius."

The journals of yesterday announced the death, at Rydal, of Mr. Edward Quillinan, son-in-law to the poet Wordsworth, and known in the select, rather than the wide world of letters, as a poet, a scholar, a contributor to more than one literary publication, and the author of one or two substantive works.

The London daily papers announce the death of Mr. William Berry—the author of several works on heraldry, genealogy, &c.

The presence of Prince Albert in Ipswich, for the purpose of visiting the Sections of the British Association, has been made by the good people of that town the occasion for connecting his name with those educational institutions for which it is acquiring an honourable reputation. Our readers well know what, under the fostering exertions of the Messrs. Ransome and the cordial co-operation of our most eminent scientific men, this Institution has grown to be amongst its provincial rivals:—and this establishment, of which His Royal Highness has now become the patron, he visited on Friday. From an address which was read by Prof. Henslow, the President, we select the following passage.—

Your Royal Highness has received assurances that our museum was formed, and has always been conducted, on the principle of allowing gratuitous admission to the public on two days in every week. Parties varying from 500 to 700 and upwards meet here on these occasions; and the good conduct and inquiring spirit shown by them are convincing us, locally and partially, of what the happy realization of a grand conception in the metropolis is explaining to the whole world—that it needs only the most simple precautions to insure the orderly conduct of large assemblages of people, whenever they congregate for the purpose of receiving wholesome instruction and of partaking of rational enjoyment.

On leaving the museum, the Prince Consort proceeded to lay the foundation of the new building about to be erected for the grammar school in the same town. The school is a very ancient institution, founded by Royal Charter. The architect is Mr. Fleury; and the *Suffolk Chronicle* gives the following details of the new edifice.—

The building will possess quite a collegiate appearance in the Tudor style, having a frontage of 168 feet and a depth on the south of 110 feet. The front elevation with its projecting porch and gables, pinnacles and parapets, has a very pleasing effect. The porch of the main entrance will be a *fac-simile* of that much admired relic, Wolsey's Gate, the most minute details of which will be adhered to, and the entire building, built of red brick and dark mortar, will be in strict accordance with it. At the several external angles octagonal buttresses will rise above the springing of the gables and ornamented parapets, and terminate in pinnacles. A tower 70 feet high will crown the entrance-hall. This hall is to be 16 feet square, and above it will be arranged the infirmary and convalescent rooms. The corridors and staircases are spacious. The school-room will be 62 feet by 31 feet, and 20 feet high, to the springing of the open timbered roof. The dining-room, senior and junior classrooms, and library will be proportionately spacious. The dormitories are to be 12 feet high and so divided as not to give more than ten single beds in each apartment. Lavatories, baths and good drainage, will be amply provided for. The play-ground will cover an area of 6¼ acres.

The proposal to found an institute of a literary and social character for printers and others engaged in the production of books and newspapers has advanced a stage or two since we last referred to it. Certain meetings, as we understand, have been held,—and a Provisional Committee is formed which meets once a week to inrol the names of persons willing to become members of the proposed Society, and to receive subscriptions. As soon as a sufficient number of names shall be obtained the Committee intend to take suitable premises and open the institution.

It is necessary to inquire again and again why the Board of Health do not at once carry out the provisions of the new Act against intramural burials. The law is clear and emphatic. The Board of Health can, if they choose, put an end to this loathsome practice. Under the pressure of public opinion, they have already exercised their power:—why do they now relax their orders? Have the graveyards of the metropolis been purged of any part of their abominations? Let us take an answer from Mr. George, churchwarden of St. Ann's, Westminster, who has lately made some inquiries on the subject. It appears from his report that the number of interments in the vaults of the parish church during the last 160 years have been 1,920,—of which there remain now only 490 coffins. It is supposed that the remaining 1,430 have been stolen for the lead of which the coffins were composed. In the open burial ground, three quarters of an acre in extent, there have been 13,788 interments during the last 20 years, and 110,240 during the last 160 years.—We hear that the Board are trying to arrange separately with each cemetery,—and that they pursue the plan of not negotiating with more than one company at a time. In this way, the nuisance may continue for years. Meanwhile, new companies may be formed—we read the prospectus of one at Woking Common this week in the daily papers—which in the end will all need to be bought up at a sacrifice.

From the first Report of Mr. Edwards, librarian to the Manchester Free Public Library, it would seem that, judging from the experience already obtained in that town, donation cannot safely be looked to as an important source of supply. The men of Manchester have given their money liberally—but not their books. Including all that have been sent from a distance—from authors, publishers, learned bodies, Government offices, private printing Societies, and other sources,—the presents amount to only 1991 volumes,—and many of these are inferior editions and of little value. The whole are not supposed to be worth 100*l*. The fact is a little curious; and as this Manchester experiment is likely to be followed at no distant day in many other towns, it is well to bear it in recollection. But this failure of an immediate influx of literary treasure does not convey to our minds the sense of doubt and disappointment that some of our contemporaries in the great manufacturing capital derive from it. Men who love their books do not like to part with their best editions:—cheap and imperfect reprints are not suitable for the new library. That which is more important than a "show" on the opening day—the latter being an object on which the Committee, in our opinion, bestow a little too much anxiety—is, that the library shall obtain a sufficiently high character to induce men with a knowledge and a love of books to *bequeath* their collections to the town. This process of accumulation is not so immediate; but it is likely with care and good management to produce, with other aids and means, a respectable library in course of time. A permanent institution need not unnecessarily waste its resources in attempts to effect everything in a week.

ROYAL ACADEMY OF ARTS, TRAFALGAR SQUARE.
The EXHIBITION of the ROYAL ACADEMY is NOW OPEN.—Admission (from Eight o'clock till Seven), 1*s*.; Catalogue, 1*s*. JOHN PRESCOTT KNIGHT, R.A., Sec.

BRITISH INSTITUTION, PALL MALL.
The GALLERY, with a Collection of PICTURES by ANCIENT MASTERS and deceased BRITISH ARTISTS, is OPEN DAILY, from Ten to Six.—Admission, 1*s*.; Catalogue, 1*s*.
GEORGE NICOL, Secretary.

LICHFIELD HOUSE GALLERY, 13, St James's Square.—The GENERAL EXHIBITION of PICTURES of the MODERN SCHOOLS of ALL COUNTRIES, by living Painters, is NOW OPEN, daily, from Ten to Eight o'clock. On Mondays from Ten to Six o'clock; and in the Evening of this day, lighted with gas, from Eight to Eleven o'clock. Admittance, 1*s*.—The Collection consists of nearly 400 Pictures. Among the later additions are many fine works from Berlin and Munich.

SOCIETY OF PAINTERS IN WATER-COLOURS.—The FORTY-SEVENTH ANNUAL EXHIBITION is NOW OPEN, at their Gallery, 5, Pall Mall East, from Nine till Dusk.—Admittance, 1*s*.; Catalogue, 6*d*. GEORGE FRIPP, Secretary.

The ORIGINAL DIORAMA, Regent's Park.—NOW EXHIBITING, Two highly interesting Pictures, each 70 feet broad and 50 feet high, representing MOUNT ÆTNA, in Sicily, during its Eruption; and the ROYAL CASTLE of STEINFELS on the Rhine, with various effects. Admission to both Pictures only One Shilling.—Children under twelve years, half-price. Open from Ten till Six.

GALLERY OF ILLUSTRATION, 14, Regent Street.—The Diorama of the OVERLAND MAIL to INDIA, exhibiting Southampton, the Bay of Biscay, Cintra, the Tagus, Tarifa, Gibraltar, Malta, Algiers, Alexandria, Cairo, Suez, the Red Sea, Aden, Ceylon, Madras, Calcutta, and the magnificent Mausoleum, "The Taj Mehal," the exterior by moonlight, the beautiful gateway, and the gorgeous interior, lighted by crystal and golden lamps, is NOW OPEN DAILY, at Twelve, Three and Eight o'clock.—Admission, 1*s*., 2*s*. 6*d*. and 3*s*. Doors open half-an-hour before each representation.

THE GREAT EXHIBITION AND THE ROYAL POLYTECHNIC INSTITUTION.—All the MOST INTERESTING DEPOSITS at the GREAT EXHIBITION will, in turn, be LECTURED ON at the ROYAL POLYTECHNIC INSTITUTION.—The PRESENT LECTURES are on the CHEMISTRY of the MINERALS and CRYSTALS at the Great Exhibition, beginning with DIAMONDS, RUBIES and PEARLS, by J. H. Pepper, Esq.—POPULAR LECTURE by Dr. Bachhoffner on the forthcoming TOTAL ECLIPSE of the SUN.—The ROTATION of the EARTH, exhibited by FOUCAULT'S Experiments.—The great economy of Cooking by GAS explained.—A LECTURE on the HISTORY of the HARP, by Frederick Chatterton, Esq., with Vocal Illustrations.—TWO SERIES OF SPLENDID DISSOLVING VIEWS.—DIVER and DIVING BELL, &c. &c.—Admission, 1*s*.; Schools, Half-price.—Open daily from half-past Ten till Five, and every evening from Seven till half-past Ten.

The forthcoming TOTAL ECLIPSE of the SUN, exhibited at the ROYAL POLYTECHNIC INSTITUTION.—A POPULAR LECTURE on this subject, ILLUSTRATED by a series of interesting DIAGRAMS, is given by Dr. Bachhoffner, daily at three, and every evening at nine o'clock, in addition to all the other SCIENTIFIC LECTURES, EXHIBITIONS, &c.

MEETING FOR THE ENSUING WEEK.
SAT. Horticultural.—Exhibition.

FINE ARTS

NEW PUBLICATIONS.

Illustrations of Mediæval Costume in England, collected from MSS. in the British Museum, Bibliothèque de Paris, &c. By T. A. Day and J. B. Dines. Nos. I. and II.

BOOKS on costume and antiquities illustrative of the history of our country are fast multiplying among us. This may be ascribed to the increasing taste for archæological inquiry and the existence of so many Societies for its cultivation. France, Germany, and even Russia, have set us the example in some costly publications. Willemin, Sommerhaud and Camille Bonnard among the French have made the Art-resources of their country popular;—the last named having also opened to the untravelled the stores which the painted fresco or the carved tomb of Italian cities could furnish. In our own land, Mr. Henry Shaw is their not unworthy compeer. Research, accuracy, and beauty of execution mark his publications. He has taken ground amongst us on which he can be passed only by the possessor of superior qualities:—and of such there will be no recognition in the two numbers of the present work yet before us. There are no great novelties in the specimens. No superior beauty of execution appears in the details of the plates; and the general taste of the *getting up*—to use the technical phrase—is unimpressive. True it is, that they are published at the small cost of one shilling for each number. We deem it, however, an unwise and almost impossible matter to popularize a subject which demands the outlay of considerable means for the successful imitation of such examples as must constitute its body. The time of the draughtsman and of the colourer must be compensated for. We fear, therefore, that the laudable intention of the projectors of this work to render the subject accessible to the public at the cheapest cost cannot be carried out with any regard to beauty of means.

Baying the Stag. Engraved by S. W. Reynolds, from a picture by Frederick Tayler.

IN a cleverly executed mezzotint print, availing himself of the appliances of the mixed styles of the engraver and the scraper, Mr. Reynolds has here produced a successful result from a very picturesque combination of Highland scenery and animals. In the treatment of such combinations few are more able than Mr. Tayler.

The Picture Gallery: comprising Portraits of eminent Persons and Popular Illustrations. Part II.

A picture by Honthorst of the family of George Villiers, the Duke of Buckingham who was stabbed by Felton, is the most noticeable print in the present number. 'Earl St. Vincent,' after a picture by Beechy, gives but an inadequate idea of the severe disciplinarian. 'Beethoven' is wanting in the massive proportion of the skull and the look of ponderous intellect:—while the portrait of Henry the Eighth conveys unhealthiness rather than arbitrary purpose. This last may be regarded as the weakest print of the series yet published.

Gallery of Illustrious Americans. Parts III., IV., V. and VI.

Daniel Webster, Silas Wright, Henry Clay, and Colonel Fremont form the subjects of these four numbers: and their faces, lithographed by D'Avignon from daguerreotypes by Brady, confirm our before-recorded opinion, that there are as distinctive attributes in the character of the American head as in any of the classes that have furnished a Prichard or a Latham with the matter of their investigations. The head of Webster has a touch of Benjamin Franklin in it:—it is benevolent and thoughtful. Wright looks like the French deputy of the present day,—Clay, like the subtle and cunning politician,—Fremont resembles the ardent and excitable American who is met with often in a month of foreign travel.

Sketches in the Pacific—The South Sea Islands. Sketched from nature and engraved in tinted lithography. By Conway Shipley, R.N.

ABOUT twenty-five views made by the gallant officer during a cruize in Her Majesty's ship Calypso to the different missionary stations in the

South Sea Islands, ordered by Sir George F. Seymour, make an agreeable volume. The book opens with scenes in Pitcairn's Island :—the school-house and chapel of which are certainly of the rudest structure. Papeite Bay, Tahite, looks a place of good anchorage : — the drawings of it signify security and repose. In contrast with this is the Hautua Valley, with the ascent to the Crown Mountain seen in the distance. The Coral Church at Papetoai resembles in no respect either the Heathen classicalities adopted in the church buildings of Wren and his times, or the Gothic revivals of Pugin and the Camden Society. Primitive and substantial, the inhabitants are exhibited entering it for worship,—summoned by a native who makes a campanile of a tree, to which he has attached a bell, that he strikes instead of ringing. The Missionary's House at Papetoai, Eimeo, contrasts strangely with some of the parsonages that we can think of at home :—it preserves much that is primitive and apostolical. Queen Pomare's house, Papeite, is just such a marine villa as might be seen on our coasts before the rage for stucco and compo sought to combine the airs of Regent Street construction with the simplicity of the shingle. The Calypso leaving Bora Bora is a good expression of movement. There is a very pretty view of Vaielele, Upolu, showing a native bridge, —and some other scenes of interest in the Navigator and Fejee Islands, which it is not necessary to particularize. If these prints are not lithographed in the first style of excellence, such deficiency is compensated for by the inherent interest of the subjects themselves.

Holzschnitte Berhümter Meister. Woodcut Specimens of the most distinguished Artists.

Herr Rudolph Weigel has given, with descriptive notices, in a small portfolio, some examples of the different schools which anciently practised this art under conditions different to those now in use. Largeness of style, breadth of execution and vigour were three centuries since the main characteristics. Of the foreign schools there is an example given from the Weiss Kunig—*Maximilian the First and Maria of Burgundy*—from the hands of Hans Burgmayer. *Christ and the Woman of Samaria* is the specimen given of the art of Lucas Cranach. Of the Italian school of wood engraving, the portrait of the physician *Fortunius Licetus*, from the graver of the Bolognese Giovanni Battista Coriolano, shows boldness of style and feeling :—though we cannot help thinking that a specimen by Ugo da Carpi, or one of his followers, would have shown a more vigorous application of the ancient Italian resources of the graver. Of the Dutch school, there is a manly portrait (name not given) by Johan Livens, whose etchings have been classified as among the successful imitations of Rembrandt. *The Incredulity of St. Thomas*, and *St. Ambrose* form the subjects of the remaining page : the names of the authors of these two Heiligenbilder not given. The work altogether is one not devoid of interest to the archæologic student in Art.

The Chapel of St. Anthony the Eremite at Murthly, Perthshire, the Seat of Sir William Stewart Drummond. Lithographed by Schenk and Ghemar, from the designs of James Gillespie Graham, Architect, and Alexander Christie, A.R.S.A.

The architectural forms of the early Italian school were resorted to in the erection, in 1846, of a Chapel at Murthly, contiguous to an old mortuary chapel, and communicating with it by an open arch, under which is placed the altar and its accessories. Mr. Gillespie Graham has displayed much acquaintance with the period which he has selected for the style of the edifice ;—and his types recur to us as the successive pages are turned over. He has been ably assisted by Mr. Christie in the painted decorations of the interior. Much to our taste are the medallion portraits of Saints Benedict, Hubert, Columba, Ignatius, Francis, Augustin, Edward, and Dominick. The whole-length figures of Saints Catherine and Margaret, with their pendants Saints Andrew and George, bespeak the painter's knowledge of ancient Italian example, not disfigured by the pedantry or affectation of imitating the *accidents* of early style. These are worthy of consideration among better known artists south of the Tweed.—The production of this richly coloured book is creditable alike to the printers and to the publishers.

Modern Tombs, gleaned from the Public Cemeteries of London. Measured, Drawn, and Etched by Arthur W. Hakewill, Architect.

It strikes us as an inconsistency—as betraying unsettledness of opinion—that though classical architecture has been almost entirely repudiated for churches and other places of worship, our cemeteries exhibit almost exclusively the antique style —or what is meant for such—and Pagan ideas. Surely the Temple and the Tomb should be marked by one and the same style, even though as objects they be quite unconnected with each other. Or, is the difference a mere matter of indifference,— to be acquiesced in as dictated by fashion ?— Having thrown out this question to take its chance of being answered,—we may observe, that the taste shown amongst us in cemetery tombs and cenotaphs is for the most part exceedingly poor—as Mr. Hakewill himself complains,—and in some instances flagitiously bad, both in point of design and as professing to awaken any religious or moral feeling. The Kensal Green Cemetery abounds in works whose pretension to make either a religious or a merely pathetic appeal excites the feelings most unsuited to the graveyard—those of derision or of disgust. Even of these "gleanings"—which, it seems, show the best designs that the author could select from the several cemeteries in the vicinity of the metropolis—we cannot say more than that they are passable. No ideas that are at once striking and novel are to be gathered from them :—what is good here being little more than the echo of something greatly better. Of some the forms are too ambitious for the scale on which they are executed ; inasmuch as their pyramid or obelisk shapes cause them to look dwarfed,—little better than models for larger works.—In any case, we desiderate a more energetic style of etching for the plates ; since owing to their being in outline, and to the subjects themselves consisting chiefly of plane surfaces defined by their profiles, the designs do not exhibit themselves with sufficient distinctness. Mere neatness of drawing is a poor substitute for spirit and touch :—without the latter, it is allied to feebleness more than to delicacy. It would perhaps be an improvement in the mode of showing subjects of the kind in outline, were the general shape defined and relieved by a shaded ground just around it :— which would require very little extra labour.

MUSIC AND THE DRAMA

ROYAL ITALIAN OPERA, COVENT GARDEN.

THIRD NIGHT of 'IL FLAUTO MAGICO.' — On TUESDAY NEXT, July 13, will be performed, Mozart's celebrated Opera, 'IL FLAUTO MAGICO.'— Pamina, Madame Grisi; Astrifiammante, Queen of Night, Mdlle. Anna Zerr (being her third appearance on the stage in England); Egle, Mdlle. Guiseppina Morra; Arethusa, Mdlle. Bertrandi; Iperethusa, Mdlle. Vintale; Papagena, Madame Viardot (who has kindly undertaken the part); Sarastro, Herr Formes; Monostato, Signor Stigelli; Oronte, Signor Soldi; Two Men in Armour, Signori Mei and Rommi; Demefonte, Signor Polonini; Papageno, Signor Ronconi; and Pamino, Signor Mario.

GRAND EXTRA NIGHT.—'LE PROPHÈTE.'—On THURSDAY NEXT, July 17, will be performed, for the third time this Season, Meyerbeer's Grand Opera, 'LE PROPHÈTE.'— Principal Characters by Madame Viardot, Madame Castellan, Herr Formes, Signor Tagliafico, Signor Soldi, Signor Mei, Signor Stigelli, Signor Polonini and Signor Mario. Composer, Director of the Music, and Conductor, Mr. Costa.

Commence at Eight. Boxes, Stalls and Tickets to be had at the Box-office of the Theatre.

MDLLE. RACHEL.—MATINÉE LITTÉRAIRE ET DRAMATIQUE.—In compliance with numerous applications, it is respectfully announced that a MORNING ENTERTAINMENT will take place at Willis's Rooms, St. James's, on TUESDAY, July 23, commencing at Three and terminating at Five, at which Mdlle. RACHEL will declaim several of the principal scenes from Racine's celebrated Tragedy of 'Athalie,' the 'Misanthrope' of Molière, and the 'Polyeucte,' Tragédie Chrétienne de Corneille, in which Mdlle. Rachel will be assisted by the principal members of the Théâtre Français, London, and positively her only morning appearance. Full particulars will be duly announced. Stalls (near the platform), 21s.; Reserved Seats, 10s. 6d.; Family Tickets, to admit three, 21s. As no more Tickets will be issued than the room can conveniently hold, immediate application is requested. Tickets may be secured at Mr. Mitchell's Royal Library, 33, Old Bond Street; and at all the principal Libraries and Musicsellers.

ST. MARTIN'S HALL.—A GRAND PERFORMANCE of CHORAL MUSIC, chiefly without Instrumental accompaniment, will take place on WEDNESDAY EVENING NEXT, July 16, by the Members of Mr. Hullah's First and Second Upper Singing Schools.—Conductor, Mr. JOHN HULLAH.—Tickets, 1s.; Reserved Seats, 3s.; may be had of Mr. Parker, 445, West Strand, of the Musicsellers, and at St. Martin's Hall.—Doors open at Half-past Seven, commence at Eight o'clock.

ROYAL PRINCESS'S THEATRE, Oxford Street.—For the BENEFIT of MR. and MRS. C. KEAN.—On MONDAY will be performed the Tragedy of THE GAMESTER—*Mr. Beverly*, Mr. C. Kean ; *Mrs. Beverly*, Mrs. C. Kean. After which, the Comedy of THE HONEYMOON—*The Duke*, Mr. C. Kean ; *The Duchess*, Mrs. C. Kean ; *Rolando*, Mr. A. Wigan. To conclude with the Farce of BETSY BAKER, in which Mr. and Mrs. Keeley will appear.

ROYAL ITALIAN OPERA.—Musical amateurs will number amongst other good deeds this year done by our Queen in the cause of art, taste and knowledge, her command of 'Il Flauto Magico' for her state visit to the Royal Italian Opera : such a commission being sure to put a manager on his mettle—and 'Il Flauto' aforesaid being an opera as difficult to cast as the newest work by Meyerbeer, regarding the impracticabilities of which severe amateurs can be so noisy in rebuke. Besides a songstress who can touch F *altissimo* for the *Queen of Night* (here found in Mdlle. Zerr) and a tragic *prima donna* who will sing *Pamina*, the part affording nothing to act (on this occasion Madame Grisi) — there are six other principal female characters to be provided for :—all of whom should be good musicians as well as good vocalists. *Queen Astrifiammante's* attendants at Covent Garden are personated by three German ladies, who are called Mdlles. Morra, Bertrandi, and Vintale,—while the three *Genii*, are three ladies from the chorus, Mrs. Temple, Mdlle. Cherichi and Miss Brannan. The latter is by many degrees the more tuneful *trio* of the two. Then, Madame Viardot—like the true artist that she is,—to strengthen the cast, plays the little part of *Papagena;* Signor Mario is *Pamino;*— Signor Ronconi, *Papageno* working up the *Panza* of this stupid tale of mystical adventure into one of the most quaintly comical creatures that ever enlivened a dull "allegory on the banks of the Nile."—Herr Formes is *Sarastro ;* Herr Stigelli, *Monostatos.* More strongly, in short, 'Il Flauto Magico' could not be cast. Let us add, that the performers did their best, and that a more faultless performance of the opera was, probably, never attained,—since in Germany, even, such things will happen as the six Ladies and the two Priests and two Men in Armour being out of tune occasionally, —and composers who load their scores with secondary parts must look to their being executed in but a second-rate manner. Then, the stage appointments are superb :—the last scene, in particular, being one of the richest examples of splendour without surfeit that we have ever seen, —simply because the grouping of colours has been there attended to, in a manner rare in England. And what musician's head, old or young, does not keep time to the sweet melodies of the opera ?—which are among Mozart's most popular tunes. Yet, the whole work is oppressive,—let the classicists abuse our epithet as they please :—and this not solely because of the unintelligible dullness of the story. Why an opera full of airs that every one loves, exquisitely treated for orchestra and voices, should be so heavy is a question too delicate to be settled here,—when we merely ought to record a careful and highly finished performance in the presence of a brilliant audience. But since it is of no light value to Art that regarding this same question of revivals truth should be arrived at, without fear of ancient prejudice or favour to modern flippancy—it is possible that we may next week attempt a remark or two on the intrinsic value of 'Il Flauto Magico,' as an Art-work by one of the giants of Music.

HAYMARKET.—That which the English musicians in committee have hitherto failed to accomplish—namely, the establishment of an English Opera — Mr. Webster may possibly bring about; by simply attending to what is practicable, and attempting only such works as there is chance of getting fairly performed. It is needless to remark, however, that his present effort is a mere sketch : calling for reconsideration and filling up in almost every point and department. Whether these be carried out or not, however, Mr. Webster deserves the present support of all who appreciate good music for having been first to produce the one-act operetta by Mendelssohn, entitled in English 'Son and Stranger'; the publication of which has been already announced in the

Athenæum.—The *libretto* of this work, by Herr Klingemann, was planned merely as a *pièce d'occasion*, to celebrate the coming home of an absent son on the occasion of a family festival calculated for amateur resources and private performance: — and, though judged pretty and genial enough in incident and humour to bear the gaze of our public, is essentially slight and unambitious.—On the eve of the jubilee of a Suabian village Mayor (Mr. Lambert), his long absent son *Herrmann* (Mr. Donald King) comes home from the wars in disguise,—intending to increase the joy of the revel by a surprise. On that same evening, however, the village is assailed by an Autolycus, one *Pedlar Kauz* (Mr. Weiss), also determined to turn the festival to his advantage,—equally ready to personate soldier, son, sweetheart to the pretty *Lisbeth* (Miss L. Pyne), or village watchman, and whose mischief-making impudence keeps the lovers in suspense and retards the disclosure for a few hours. It is not too much to assert that Mendelssohn's music, though written on a tale no stronger than this, and temporary as was its purpose, is a final answer to those who have asserted that he did not, because he could not, write for the stage. Such grudging persons might, it is true, have been confounded from his scenic music to the 'Athalie' and the 'Midsummer Night's Dream,' but they are now more obviously and precisely contradicted — at once and for ever. Fresher than 'Son and Stranger' or more dramatically coloured no composition could be. For songs, there are the spinning-wheel ballad for *Ursula* (Miss Pyne), *Lisbeth's* charming *Lied* in the third scene, the dancing song of the pedlar (among the most effective and merry *buffo* airs ever written), and to our thinking best of all, because most original, the delicious romance of *Herrmann*,—

When the evening bells are chiming.

In all these the effect and the character are equal to the intrinsic beauty of the music. Then, for more dramatic pieces, we may cite the duett betwixt the two women,—the capital terzett 'O how wilt thou,' which is full of life and animation,—the second terzett, as true a piece of comic scolding and cajolery as ever Cimarosa wrote,—and the scene betwixt the rivals under *Lisbeth's* window, with the droning cry of the village German watchman, employed in caricature to interrupt the serenade. More adroitly managed and hearty fun in music than this scene presents does not exist in opera. The least, no less than the longest, of the above pieces is finished with the solicitude of a true and ripe artist;—and we have specified enough, it will be owned, to make the fortune of a three—not a one—act drama. The work is lightly scored; but with grace, variety and piquancy. The music, though difficult from the animation of its movements, (a difficulty doubly felt when it is executed with the drawback of a translated text not always easy in its intervals and written for exceptional voices), is full of legitimate vocal effects. We may return to this operetta further to point out excellencies of detail on some future day:—enough for the moment to say, that what was considered by its composer as a mere plaything deserves to keep the stage so long as comic opera shall exist. More warmly no production could be received by a crowded house;—more carefully, let us add,—the resources of the theatre considered — it could not have been produced. No ordinary credit is due for this to Mr. Mellon, by whom it had been prepared. The music was thoroughly known and cleverly sung by all the artists employed:—not forgetting Miss Pyne, who, as the *Mayor's Wife* made her *début* on the occasion,—nor Mr. Lambert, as the *Mayor*, with his comical single note, — nor a tuneful and effective chorus. The execution, in short, was such as, if attainable, was never attained in English musical theatre twenty years ago:—and the success should encourage Mr. Webster to make further efforts in the same direction. But he may search long before he will find another one-act operetta so full of first-class music as 'Son and Stranger.'

ST. JAMES'S THEATRE. — By a correspondent's notice of 'Valeria' [*ante*, p. 276] on its production in Paris, we are absolved from the necessity of dwelling on the invention or analyzing the plot of this ingeniously disagreeable drama, in which, without adequate pretext, MM. Lacroix and Maquet have plunged deep into the abominations of Imperial Rome,—its foul morals,—its fearful conspiracies,—its shameless corruptions. But were the epoch a purer one, the personages of loftier stature, and the design more clearly marked, the authors of 'Valeria' do not seem capable of building a romantic drama on a classic subject. It is true that intrigues, mistakes, surprises, are accumulated and dovetailed by them as adroitly as if they had studied in M. Scribe's school;—but their dialogue is hunger-bitten, — their verse wants elevation even more than imagery, their characters are patchy — in short, betwixt the necessity of antique story and the licences of modern melodrama, 'Valeria' sinks to the level of a repulsive tragi-comedy of errors, written for the purpose of exhibiting Mdlle. Rachel in two parts. Thus much of the play.—To our thinking, this double assumption—so deservedly admired for its wonderful cleverness—is beneath the dignity of the Queen of the French stage. In proportion as it asserts her skill, is it fatal to the play;—since whereas the story enjoins that the Empress *Valeria* and the courtezan *Lysisca* should be so closely alike as to be mistaken the one for the other,—pride of stage-craft urges the actress sustaining the two parts to prove her versatility by *their* dissimilarity. If two artists could so closely simulate each other as to mystify the audience, that would be a legitimate triumph: but when Mdlle. Rachel appears in one scene self-possessed and dignified as the Roman Empress,—in another as the dissolute Greek, flushed with wine at an orgie,—changing, not merely her dress, but her face, her voice and her gestures, with marvellous dexterity so as to present two women and two natures totally opposite,—there remains nothing to connect "fair" and "foul" in our apprehensions but our prosaic play-bill knowledge of the identity of the actress. Thus, to the unpleasing invention of the play an element of confusion is added, by the very device which is intended to exalt the genius of Mdlle. Rachel.—This, however, does in one respect exalt our opinion of her executive skill. Even her *Roxane* is less complete after its kind than her *Lysisca*. The hoarse, wearied voice—the voluptuous, beaming eye—the hollow cheek repaired with false bloom —the alluring grace of gesture—the feverish recklessness of the courtesan, however painful—are personated with a completeness and finish displayed by Mdlle. Rachel in none other of her new parts,—and suggesting the existence of powers more various than the Tragic Muse of France has yet been credited with. *Cleopatra* may possibly be always beyond her range,—but here is *Cressida* in all the force of her shameless fascinations. In serious and poetical drama we find Mdlle. Rachel increasingly unequal; year by year exaggerating the contrasts of her declamation more and more, and becoming more and more an actress of points and effects. Can her *Lysisca* intimate that she is meditating an inroad into that world of unlovely realities which the French delight to explore and exhaust? She will hardly do this without sullying her sandals past cleansing, without tarnishing her crown past restoration; and we cannot see her urged thitherward by a success which should startle rather than intoxicate her without earnestly wishing that it were not so. Art cannot always keep on the pedestal of the highest imagination or of the noblest passion:—but Art loses its nature, and should lose its name, when it begins to quit the Porch and the Garden and to roam the stews and the kennels in search of strong emotions and vivid characteristics.

PUNCH'S PLAYHOUSE. — This management improves on acquaintance. Two new pieces were produced on Monday. The first was an original farce, by Mr. Hatch, entitled 'Dearest Anna Maria,'—in which Mr. Tilbury performs the part of a doating, yet doubting, husband, *Mr. Twittleton Cuddlelove;* whose imagination is so wrought on by the story of a friend, *Mr. Cockles Gabbyrattle* (Mr. Norton), that he is led to believe his wife's tirewoman to be a captain in petticoats,—and accordingly challenges poor *Susan Darke* (Mrs. C. Horman) to a duel. Both parties are equal cowards in an affair of fire-arms. In the present case, however, these being loaded with Parr's life pills, are harmless. The mysterious intercourse between mistress and servant which had excited the husband's suspicions is then explained. *Mrs. Cuddlelove* is the victim to a premature calamity. Certain grey hairs had intruded among her raven locks, and their removal was the employment of Susan during the stolen interviews that had so puzzled and plagued Mr. Twittleton,—who, it seems, was exceedingly particular touching the colour of his lady's tresses. Though sufficiently amusing,—this piece should have been better finished. We recommend Mr. Hatch to take more pains in future, and to pay more attention to details and treatment. Many obvious points were missed, and there was a general want of colouring throughout. Mr. Tilbury played with great spirit.—The second piece is by the authors of 'The Princesses in the Tower,'—and is founded on the legend of 'Godiva, or ye Ladye of Coventrie and ye Exyle Fayrie.' It forms a sprightly burlesque; in which Miss Marshall, as the heroine, a sort of mediæval Lady Gay Spanker, successfully emulates the style of Mrs. Nisbett, and displays a large amount both of fascination and of intelligence. Mr. John Reeve has also a part in this extravaganza, as the special commissioner of a metropolitan paper, taking notes of the state and causes of social discontent in Coventry. He was fantastic and lively,—and now begins to justify his early promise and paternal name. The part of *Leofric* was confided to Mr. Norton,—who performed with tact. Commendation is due to Miss E. Romer as the "Exyle Fayrie,"—and to Mr. Romer for his very eccentric portrait of the *Mayor of Coventrie*. The piece was completely successful. The scenery, painted by Mr. Dearlove, jun., was carefully compiled.

MUSICAL AND DRAMATIC GOSSIP.—In addition to the interesting events of the week recorded in detail, we must mention, though only by a line, the appearance of Signor Ronconi, in 'I Puritani,' on Tuesday last at the Royal Italian Opera,—state that the Spanish dancers promised for Her Majesty's Theatre performed there on Monday, —and call attention to the fact of Mdlle. Alboni's re-appearance there this evening.

Since last week's notices were written, entertainments have been given by three *pianistes*—*Miss Kate Loder, Mdlle. Elise Krinitz*, and *Mdlle. Meara*. Of our young countrywoman's extraordinary and sterling musical talent we need not speak anew. She aspires, perhaps, a little too much to the easy—not to say careless—style of a composer's playing; and thus falls short of that highest finish which public performance demands:—but her taste is unimpeachable, her science is beyond question,—both her instincts and her knowledge direct her towards the best music of the best masters, and her compositions are sound and clever.—Mdlle. Meara is particularly welcome to us, because having only such physical force as befits a chamber, she seems wisely determined to be a chamber musician—giving to her performances, nevertheless, as exquisite a polish and as complete an individuality as music is capable of receiving. It is long since we have been better pleased than by this young lady,—in whom the absence of pretension is as remarkable as the presence of grace. Then, she deserves especially good usage from critics because, while she is substantial enough to grapple with Beethoven, Mozart, and Handel, she seems to have the fantasy, the tradition, the freakish delicacy, and the half pensive half humorous sentiment which befit the music of Chopin. We have heard no one play his *Notturni, Studies*, and *Mazurkas* so elegantly and capriciously as Mdlle. Meara. Her *matinée* was further interesting as affording us a hearing of M. Franchomme, the best of Parisian violoncellists,—also of a small Franchomme, who, if he be not too early made a prodigy, ought one day to take rank among the greatest violoncellists.

The meetings of the *Musical Union* came to a close on Tuesday. — *M. Rousselot's* benefit, as director of the *Beethoven Quartett Society*, took place on Wednesday evening.

Happily, for the moment, there is not much foreign musical news to claim attention. The stir of rumour, &c., however, regarding 'L'Africaine' of M. Meyerbeer, the probable time of its production, and its possible cast at the *Grand Opéra* of Paris seems to be beginning.—The recent musical festival at Lille is described as having gone off with great spirit.

Mdlle. Fanny Elssler has taken leave of the stage at Vienna in the *ballet* of 'Faust,'—leaving behind her neither peer nor successor as regards combination of versatile pantomimic genius with executive brilliancy. It has been said, however, that the name will not be lost to the public,—since there is a chance of the family giving to the stage a singer of promise.—Never were singers more needed than at the present juncture.

TWENTY-FIRST MEETING OF THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

[*From our own Correspondents.*]

THE business of the Meeting having been brought to a close on Tuesday last,—we give, as usual, in this place our historical summary of the order which its proceedings followed.—On Wednesday the 2nd inst. the General Committee assembled,—and in the evening the first General Meeting was held,—as we last week recorded.—On Thursday, business began, as usual, in all the Sections:—and here we may remark that the subject of Ethnology, which was treated last year as a Subsection under the titles Natural History and Physiology (D), has, by a new arrangement, been united with Geography, under the letter (E). In the evening the Corn Exchange was open for promenade and conversation,—and for an exhibition of microscopic power.—On Friday evening, Prof. Owen delivered a discourse on the distinction between Plants and Animals, and their changes of form.—On Saturday, no business was done in any of the Sections:—the day being devoted to excursions. The members availed themselves of the facilities offered by the Railway Directors; and scattered themselves, some to Norwich—others to Bury and Colchester,—and many visited Shrublands. The Geologists were to have gone to Woodbridge, to visit the Crag-pits; and Mr. Thomas was warned that at least sixty would make a descent upon his breakfast hospitalities. But at the appointed hour only one came to tell the tale that the rest had deserted,—exchanged their tickets, and gone down the Orwell. The Antiquaries landed at Harwich,—the Geologists proceeded, some to Walton and Clacton, others to Felixstow,—but most kept on board till the end of the trip at Bawdsey. Those who landed at Felixstow were entertained by Mr. Cobbold, M.P.; and had a good view of the low cliffs of London clay, capped by ten or twenty feet of sand and shingle, including the coprolite bed,—to get at which many quarries have been made and numbers of people employed. Several hundred tons of it was lying ready for removal at the time of the visit. Many of these are true coprolites, having the spiral form, which Dr. Buckland rejoiced to point out. But the most interesting thing in connexion with the coprolite quarries is, the discovery of the remains of the mastodon and miocene rhinoceros, and of the tapir, a genus now represented by only two species,—one in Mexico, the second on the other side of the world, in the Malay Islands. The coprolites require sorting, as there are flint pebbles and sandstone and oolitic limestone pebbles mixed with them.—On Monday afternoon, the General Committee held a meeting for the purpose of fixing the time and place of their next congress, and of electing the office-bearers for the coming year;—and in the evening, the President, the Astronomer Royal, delivered a discourse on the Total Solar Eclipse of July 28, 1851. This discourse need not now be reported:—its substance having been anticipated in our columns [*ante*, p. 557] in our report of a paper read by Prof. Airy in May last at the Royal Institution.—The business of the Sections on the several days will be found detailed in our columns.—On Tuesday the General Committee assembled, to sanction the grants that had passed the Committee of Recommendations:—and on the evening of the same day—after the President's dinner, which took place at the Coal Exchange—the final General Meeting was held, for the accustomed ceremonial proceedings.—With this the business of the Association in the town of Ipswich terminated.

GENERAL COMMITTEE.

MONDAY.

The General Committee met at the Town Hall at three o'clock, the ASTRONOMER ROYAL in the chair. The former minutes having been confirmed,—The CHAIRMAN said that the first business was, to fix on the locality for the meeting of the British Association in 1852. Invitations had been received from Belfast, Hull, Leeds, and Brighton. He would first call on the gentlemen representing Belfast. Profs. STEVELLY, HANCOCK, and THOMSON successively urged the claims of the town, and Prof. Thomson read invitations from the chief corporate bodies and associations.—Dr. DOBBIN applied from Hull, and wished it to be recorded that the town of Hull invited the Association for the year 1853.—Mr. W. WEST, of Leeds, invited the Association for the year 1854, when the new hall would be completed.—A letter was then read from the clerk to the Brighton Committee, requesting to be informed of the usual and formal manner of inviting the Association.—Sir R. I. MURCHISON referred to Brighton as a very advantageous spot for the proceedings of the Association at some future date. The votes were then taken, and Belfast was unanimously elected for the place of meeting for the year 1852.—Col. SABINE was elected President for that year,—retaining during the coming year his place as General Secretary; and the time fixed for the next meeting was, the month of August,—the precise date being reserved for the consideration of the Council.

Dr. ROYLE and Prof. PHILLIPS were re-elected Under-Secretaries, and Mr. TAYLOR was re-elected Treasurer.

TUESDAY.

The General Committee met at four o'clock; when Col. SABINE announced that the Committee of Recommendations had suggested the following GRANTS.—

300*l.* for the maintenance of the Observatory at Kew.

50*l.* as a renewal of the former grant to Prof. J. D. Forbes, for Experiments on the Radiation of Heat.

20*l.* to Mr. Robert Hunt, Dr. G. Wilson, and Dr. Gladstone to continue their investigation on the Influence of the Solar Radiation on Chemical Combinations, Electric Phenomena, and the Vital Powers of Plants growing under different atmospheres.

15*l.* to Prof. Ramsay to prepare a large Geological Map of Great Britain and Ireland to accompany the Section and Association.

10*l.* to Prof. E. Forbes and Prof. T. Hall to assist Dr. Williams to draw up his Report on British Annelida.

6*l.* to Hugh E. Strickland, Esq., Dr. Daubeny, Dr. Lindley, and Prof. Henslow to continue their Report on the Vitality of Seeds.

20*l.* to Lord Montcagle, Sir J. Boileau, Mr. G. R. Porter, Mr. Fletcher, Dr. Stark, and Prof. Hancock to prepare a Report on the Census of the United Kingdom.

20*l.* to Mr. A. W. Fairbairn to make a series of Experiments on the Tensile Power of Wrought Iron Boiler Plates at various Temperatures.

These grants were agreed to.

Sir R. I. MURCHISON presented a copy of the Memorial addressed to the First Lord of the Treasury on the deficient state and slow progress of the Ordnance Survey of Scotland, as drawn up by the Committee named for that purpose at the last Edinburgh Meeting,—and also a recommendation of that Memorial, signed by a number of the nobility and gentry of Scotland. Reminding the General Committee that a Memorial, prepared and signed by himself, as authorized by the Meeting of the British Association at Edinburgh in 1834, on the lamentable state of the geography of Scotland, was the first public measure taken by that body in reference to the Government,—and explaining why it was found necessary to revive that stimulus at the last meeting (1850),—he wished it to be put on record that the British Association had led the way on both occasions in urging this important subject on the attention of the public. He added, that not only had this last Memorial been favourably received by Lord John Russell, but that a Committee of the House of Commons had been appointed in consequence; and that, having already advanced far in the inquiry, there was every reason to hope that the object which he had so long endeavoured to attain would be now speedily and well accomplished by the grant of a much larger sum of money to the Ordnance Scottish Survey than had ever hitherto been allotted to it.

The following papers were recommended to be printed in the volume of the Society's Proceedings in addition to the Reports called for from individual members.

Dr. Drew's Tables of the Mean Results of Meteorological Observations at Southampton.

Prof. Dumas' Statement on Atomic Volume, and his Reasons for considering that certain Bodies now considered as Elementary might be decomposed.

Dr. Daubeny's Statement on the Chemical Nomenclature of Organic Substances.

These recommendations were agreed to,—and the Committee adjourned.

GENERAL MEETING.

TUESDAY.

The final General Meeting of the Association was held at the Mechanics' Institute,—The ASTRONOMER ROYAL again presiding.—Col. SABINE read over the proceedings of the General Committee at the meeting of that day.—Prof. PHILLIPS announced that 711 persons had taken part in the proceedings of the Association during the week:—of whom 37 were foreign gentlemen of distinguished eminence. The money received was 620*l.*

The customary votes of thanks were passed,—and the Association adjourned.

FRIDAY.

SECTION A.—MATHEMATICAL AND PHYSICAL SCIENCE.

Prof. POWELL'S Report 'On Luminous Meteors,' continued from the Report of 1850, was the first communication.—The author observed that the tabular form of arrangement agreed upon by a Committee of the British Association last year has been adopted by most of the observers.

Dr. ROGET asked Prof. Powell whether in his Report he had taken any notice of the curious suggestion of Sir John Lubbock, that at least many of those luminous meteors were opaque bodies illuminated by the sun's rays, which by falling into the earth's shadow appeared to be suddenly extinguished. He was aware that to some of them this explanation was found not to apply; but, on the other hand, Sir John Lubbock had shown by actual calculation that it did apply to many, on a very probable supposition being made as to their distance from the earth.—Prof. POWELL stated that the object he had in view as yet was merely a record of facts, independent of any particular theory; and that, therefore, neither Sir John Lubbock's ingenious conjecture as to this class of luminous meteors nor any other theory required to be noticed in his Report.

'Remarks on Lord Brougham's Experiments on Light, &c. in the Phil. Trans. 1850, Part I.', by the Rev. Prof. POWELL.—The experiments of Lord Brougham on the properties of light are regarded by their author as offering new facts at variance with the principle of interference, hitherto so successfully applied to all phenomena of this class. They seem, therefore, to call for some remarks as to their actual bearing on the question. The experiments all refer to the well-known phenomena of diffraction-fringes formed by the edge of an opaque screen, which the author views in connexion with a peculiar theory of *inflecting* and *deflecting* forces; the nature of the effect being chiefly investigated by placing a *second edge at some distance from the first along the ray*, and occasionally a third, which produces changes in the breadth and position of the fringes. In the author's attack on the interference theory (especially in Prop. xi.) a considerable misconception of that theory appears to be involved. Though the undulatory theory has been successfully applied to the general subject of these fringes, yet it is well known that the application of the formulæ to any but the simplest cases of edges and apertures is defective, owing to the great complexity of the resulting expressions, and the impossibility of interpreting them except under very restricted conditions. Thus, the

integration has not been extended to the case of a *square* aperture (considered in one of these experiments), nor again to the action of a second or third edge *at different distances*,—this last case being obviously the same as that of an aperture or screen whose plane is *inclined* to the path of the rays. Fresnel, in his justly celebrated Memoir, ('Sur la Diffraction de la Lumière,' *Mém. de l'Institut.* tom. v. for 1821, published in 1826, note, p. 452,) considers briefly this very case. He points out the conditions necessary for determining the position of a given fringe, and shows generally that the fringes will not be symmetrical, having a greater extension towards one side; but he does not give any analytical investigation, which would manifestly be one of considerable complexity. I some time since requested a friend eminently versed in the mathematical part of the subject to deduce these expressions at length, and ascertain what results would probably be attainable. That request has been so far complied with that I am able to state that the integrals are extremely complicated, though it seems difficult to say whether they may not yield to proper treatment: the main question is, whether the expenditure of time and trouble would not be greater than any results likely to be obtained would repay.

Sir D. BREWSTER remarked that the principal fact which Lord Brougham considered of great importance seemed to have been overlooked by Prof. Powell,—that after a beam of light had suffered one diffraction, by being made to pass one diffracting edge, a second edge placed on the same side of the beam seemed to have no further power of either increasing or modifying the diffraction; but a diffracting edge placed on the opposite side of the beam seemed to produce its full diffractive effect, just as if no diffraction had already taken place. This the noble author of the experiments considered to be evidence that the beam which had already suffered diffraction had acquired a species of polarity or diversity of polarity on its opposite sides. Lord Brougham did not wish to establish or overthrow any particular hypothesis by these experiments; and he (Sir D. Brewster) agreed with Prof. Powell that they did not affect the undulatory theory.—Prof. STOKES, Prof. STEVELLY, and Mr. RANKINE pointed out reasons why the second diffracting edge placed on the same side of the beam should not produce any further diffraction, but should produce that effect on the opposite side, where it would stop the course of the other portion of the diverging beam.

'On M. Guyot's Experiment,' by Prof. POWELL.—The recent experiment of M. Foucault, giving direct proof of the earth's rotation, having excited so much attention,—it seems remarkable that an equally striking one devised and tried by M. J. Guyot, in 1836, should have been passed over or forgotten. That gentleman observed, that as a falling body deviates to the east, a long plumb line ought to do the same. This experiment he performed in the dome of the Pantheon at Paris with a plumb line about 172 feet long, and determined the deviation to be 4½ millim. in 57 mètres. His mode of experimenting was by small balls, one at the point of suspension, the other at the weight, whose images strongly illuminated and reflected in a basin of mercury placed below, were viewed from above, and found to coincide when the eye was laterally distant 4½ millim. from the upper ball. The experiment might probably be simplified without the trouble of illumination, by making the suspension from a line passed across a small circular aperture in a flat roof, the light coming through which would probably give a sufficiently light image in the mercury below. The effect is also stated to be sufficiently *perceptible* with much less length than that above stated. The author was merely desirous of calling attention to this experiment, in the hope that it will be repeated with due care in this country.

Sir D. BREWSTER distributed copies of a pamphlet which he had that morning received from Mr. Fox Talbot on the experiment of Foucault.

Papers were then read 'On the Zodiacal Light,' and 'On some unusual Atmospheric Phenomena,' by Mr. E. J. LOWE.

Mr. LOWE read a paper 'On the Establishment of a Midland Observatory.'—Mr. Lowe referred to the want of such an institution, to which persons interested in the physical sciences, but not rich enough to erect and maintain such observatories for themselves, should have access. He proposed to build such a building at his own expense, to place the instruments he possessed in it, and to give his personal attention gratuitously; to raise a fund, by shares, to purchase other instruments and defray the ordinary expenses of such an establishment, giving the subscribers certain privileges in proportion to the amount of their shares, such as that of themselves visiting and using the instruments and introducing their friends. At his death the building and instruments supplied by himself to belong to his family, but the others to be the property of trustees for the subscribers.

The PRESIDENT, in the name of the Committee of the Section, stated that although the Committee permitted this communication to be read in the Section for the purpose of making the proposal known to the members, yet they wished it to be understood that the Association was in no way committed to any approval or disapproval of the plan as a whole or in any of its details.

Mr. F. C. BAKEWELL read a paper 'On the Copying Electric Telegraph,' and illustrated its action by experiments with the instruments.—In the method adopted for transmitting copies of writing, the letters to be transmitted are written on tin-foil with varnish, so as to present a conducting and a non-conducting surface. The foil is placed on the cylinder of the transmitting instrument, and a metal style in connexion with a voltaic battery presses on the surface of the cylinder as it revolves. By this means the electric current is continually broken when the style is resting on the varnish, and as the style is made to traverse by an endless screw from one end of the cylinder to the other, it passes necessarily over all the lines of the writing, and about eight times over each line. The receiving instrument is similar to the transmitting one, and on the cylinder of that instrument paper moistened with a solution of prussiate of potass in diluted muriatic acid is placed; the metal style on that instrument being a piece of steel wire. When the electric current from the positive pole of the voltaic battery passes through the steel point to the paper, a blue mark is made by the production of Prussian blue,—and when the cylinder is in motion, the effect is to draw a series of spiral lines on the paper; but as the lines are broken whenever the varnish writing on the transmitting cylinder interposes, the forms of the letters are transferred from one instrument to the other,—the writing appearing of a pale colour on a ground of blue lines drawn closely together. To produce this effect, it is requisite that both instruments should rotate exactly together, and this synchronous movement is attained by means of an electro-magnet,—one instrument being made to regulate the other by retarding its motion at regular intervals. The regulation of the instrument is also facilitated by a guide-line, consisting of a strip of paper placed at right angles to the writing, by which means the person in charge of the receiving instrument can ascertain exactly how much the speeds of the two instruments differ, and by the addition or abstraction of weight can bring the gaps formed by the strip of paper to fall exactly under each other,—which indicates that the two cylinders are revolving at the same rate. It was stated, in answer to questions by members present, that two hundred letters per minute might be copied by the instruments exhibited, and that five hundred in a minute are attainable. To illustrate the facility which this means of telegraphic communication affords for transmitting secret messages, an apparently blank piece of paper was produced, on which a message had been impressed invisibly before the meeting of the Section, and by brushing it over with a solution of prussiate of potass the writing became instantly legible.

'On a new Elliptic Analyser,' by Prof. G. G. STOKES.—After alluding to various methods which had been employed in investigating experimentally the nature of elliptically polarized light—that is to say, the elements of the ellipse described,—the author exhibited a new instrument which he had invented for the purpose. In its construction he had aimed at being in all important points independent of the instrument maker, assuming nothing but the accuracy of the graduation. The construction was as follows.—A brass rim, or thick annulus, is fixed on a stand, so as to have its plane vertical. A brass circle, graduated to degrees, turns round within the annulus, and the angle through which it is turned is read by verniers engraved on the face of the annulus. The brass circle is pierced at its centre, and carries on the side turned towards the incident light a plate of selenite, of such a thickness as to produce a difference of retardation in the oppositely polarized pencils amounting to about a quarter of an undulation for rays of mean refrangibility. The brass circle carries a projecting collar on the side next the eye, and round this collar there turns a moveable collar carrying verniers, and destined to receive a Nicol's prism. The observation consists in extinguishing the light by a combination of the two movements. The retarding plate converts the elliptically polarized light which has to be examined into plane-polarized, and this plane-polarized light is extinguished by the Nicol's prism. There are two distinct positions of the retarding plate and the Nicol's prism in which this takes place. In each of these principal positions the retarding plate and the Nicol's prism may be reversed (*i. e.*, turned through 180°), and the means of the readings in these four subsidiary positions may be taken for greater accuracy. The readings of the fixed and moveable verniers in each of the two principal positions are four quantities given by observation, which determine four unknown quantities,—namely, 1. The index error of the fixed verniers, or, which comes to the same, the azimuth of the major axis of the ellipse described by the particles of ether, measured from a plane fixed in the graduated circle; 2. The ratio of the axes of the ellipse; 3. The index error of the moveable verniers; 4. The retardation due to the retarding plate. The unknown are determined from the known quantities, by certain simple formulæ given by the author. The author stated that he had made a good many observations with this instrument for the sake of testing its performance, and that he had found it very satisfactory. Inasmuch as light is not homogeneous, the illumination never vanishes, but only passes through a minimum, and in passing through the minimum the tint changes rapidly. This change of tint is at first somewhat perplexing; but after a little practice the observer is able to know it mainly by intensity, taking notice of the tint as an additional check against errors of observation. The accuracy of the observations is a little increased by the use of rather pale coloured glasses. To give an idea of the degree of accuracy of which the instrument is susceptible, suppose the ratio of the axes of the ellipse described to be about 3 to 1. In this case the author found that the mean error of single observations amounted to about a quarter or the fifth part of a degree in the determination of the azimuth, three or four-thousandths in the determination of the ratio of the minor to the major axis, and about the thousandth part of an undulation in the determination of the retardation. On account of the accuracy with which the retardation is determined, and the largeness of the chromatic variations to which it is subject, the instrument may be considered as determining not only the elements of the ellipse described, but also the refrangibility of the light employed, or its length of wave, which corresponds to the refrangibility. The author stated, that the error of the thousandth part of an undulation, to which the determination of the retardation was subject, corresponded to an error of only the twentieth or thirtieth part of the interval between the fixed lines D and E of Fraünhofer.

Sir D. BREWSTER and Mr. POWELL expressed severally the pleasure they experienced in seeing so useful an instrument placed in the hands of those engaged in researches on polarized light.

Prof. FARADAY exhibited a specimen of Dark Glass which had been sent to him by Mr. William Roxburgh, which had been acted on in a curious manner by the solar beams concentrated at the eye-piece of a telescope which magnified 100 times. It was the fourth or fifth dark glass eye protector which had been used with similar results. A small portion of the surface of the glass, and to a slight depth below it of a conical shape, had been so altered by some peculiar action, as to be quite destructive to the correct transmission of the rays of light. A dark red glass in the same place had not been affected, but the heat passed through in such quantity as to be almost painful to the eye.

'On Diamagnetism and Magne-Crystallic Action,'

by Dr. J. Tyndall.—One of the most important inquiries which at the present day occupy the attention of the student of physical science, is the relation which subsists between magnetism and diamagnetism. Are the laws which govern both forces identical? Will the mathematical expression of the attraction in the one case be converted into that of the repulsion in the other case by a change of sign from positive to negative? To this question Plücker replies "No." His experiments have led him to the conclusion, that when the power of a magnet which operates upon a body composed of magnetic and diamagnetic constituents is increased, the diamagnetism of the compound mass increases in a much quicker ratio than the magnetism; that in consequence of this an indifferent body is a physical impossibility; for a body in which the respective forces might be exactly equal and apposite when excited by a magnet of a certain strength would, upon lowering the power of the magnet below this standard, be attracted,—and by increasing the power of the magnet beyond this standard, be repelled. During a previous investigation, the author of the present memoir had repeated opportunities of observing phenomena exactly similar to some of those which form the premises of Plücker's conclusion; and a close study of the subject convinced him that to account for these phenomena the hypothesis of two conflicting forces in the same compound mass, the one or the other of which predominates according as the power of the magnet is increased or diminished, was by no means necessary. To fit himself for the investigation of this question, he commenced an inquiry last November into electro-magnetic attractions; one of the results of this inquiry was, that a sphere of soft iron separated from the end of a straight electro-magnet by a small fixed distance, was attracted by the latter with a force exactly proportional to the square of the exciting current. Now, this attraction is in each case the product of two factors, one of which expresses the magnetism of the magnet, and the other the magnetism of the ball; and it is easy to see, that while the attraction increases as the square of the current, the magnetism of the ball increases in the simple ratio of the current itself. Our way to a comparison of magnetic attraction and diamagnetic repulsion is now clear. We know the law according to which the magnetism of the iron ball increases, and we have only to inquire whether the diamagnetism of the bismuth ball follows the same law. The apparatus used in the former case proved, however, to be totally unfit for the measurement of diamagnetic force,—the feebleness of the latter rendered a much more delicate mode of measurement necessary. The torsion balance was the instrument finally resorted to by the author. A loop of paper was attached to one end of a fine silver wire, and in the loop rested a little beam of light wood. At the ends of the beam, which was six inches long, two spoon-shaped hollows were worked out, in each of which a ball of the substance to be experimented with might be placed. Two cones of soft iron, surrounded by helices of copper wire, were placed at right angles to the beam when horizontally suspended, the one cone facing the ball at one end, and the other cone facing the ball at the other end. The silver wire was carried upward through a tube three feet in length, and was connected at the top with a torsion head. When the cones were excited, by sending an electric current through the surrounding helices the balls were repelled. The index of the torsion head was then gently turned against the repulsion until the balls were brought within $\frac{1}{10}$th of an inch of the ends of the respective cones. The torsion necessary to effect this is evidently the expression of the repulsive force exerted at this particular distance. The strength of the exciting current was measured by a galvanometer of tangents, and it was regulated by means of a rheostat. The cones were excited by currents which varied from 10° to 57°, and the corresponding repulsions were determined. Spheres of the following diamagnetic substances were used:—1. Bismuth of commerce; 2. Chemically pure bismuth obtained by dissolving the material of commerce in nitric acid, precipitating it with distilled water, washing the precipitate for six days successively, and reducing it by means of black flux; 3. Sulphur of commerce; 4. Spheres from a crystal of native sulphur obtained in Sicily; 5. Calcareous spar from Clitheroe; 6. Calcareous spar from Andreasberg, in the Hartz mountains, Germany. In all these cases the diamagnetism of the spheres followed precisely the same law as the magnetism of the sphere of soft iron:—it was exactly proportional to the exciting current. These results cannot be reconciled with the statement that diamagnetism increases with the increasing power of the magnet in a much quicker ratio than magnetism. The experiments of Plücker might be accounted for in many ways, but such explanations, being necessarily conjectural, may be omitted here. It is known that crystalline bodies suspended between the poles of a magnet exhibit phenomena which are absent in the case of amorphous bodies. A certain line through the crystal will take up a certain determinate position; and if this line be forcibly moved away from this position, when the force is removed it will return to it. Thus, a crystal of pure carbonate of lime suspended by a silk fibre between the poles with its optic axis horizontal, will always turn until the optic axis is perpendicular to the line joining the poles, in which position it will come to rest. This fact was discovered by Plücker, who referred it to the operation of a new force which was entirely independent of the magnetism or diamagnetism of the mass of the crystal. In an investigation conducted by the author in companionship with Prof. Knoblench, of Marburg, this hypothesis of a new force is rejected; and it is there shown that the position of the optic axis, so far from being independent of the magnetism and diamagnetism of the mass, is entirely changed if a magnetic constituent be substituted for a diamagnetic. Thus, for instance, carbonate of iron differs from carbonate of lime only in the fact that in the former case an atom of iron is substituted for an atom of calcium. The crystalline form in both cases is identical, the optic axis of carbonate of iron sets nevertheless from pole to pole with an energy far surpassing that with which the optic axis of carbonate of lime sets perpendicular to the line joining the poles. But why is it that one direction in the crystal takes up a particular position? The torsion balance gives a prompt answer to this question. A sphere of calcareous spar was placed upon each of the spoon-shaped hollows of the beam, the direction of the optic axis through each sphere being carefully marked. The spheres were first placed so that the optic axes were parallel to the axes of the soft-iron cones,—and secondly, perpendicular to the same. The repulsion in the former case was to the repulsion in the latter in the ratio of 53 to 48. If a bismuth crystal be suspended between two poles, the plane of most eminent cleavage will always set perpendicular to the line joining the poles, that is, equatorial. A cube formed from this crystal was placed on each end of the little beam; first, so that the planes of principal cleavage were parallel to the axes of the cones; and secondly, perpendicular to them. The repulsion in the former case was to the repulsion in the latter in the ratio of 53 to 38. The diamagnetic mass in both these cases is repelled with a greater force in one direction than in any other direction. When the crystal is suspended between two poles, the line which marks the direction of maximum repulsion recedes as far as possible from the poles, and hence sets equatorial. A result the exact antithesis of the above was observed with magnetic crystals. A cube of sulphate of iron was attracted in one direction by a force of 43, and in another direction by a force of 36·3. A sphere of carbonate of iron was attracted in the direction of the optic axis by a force of 43, and in a direction perpendicular thereto by a force of 30·5. When these crystals are suspended between two poles, these lines of chief attraction approach the poles, and finally set axial. Thus we see that the peculiar phenomena exhibited by crystals in the magnetic field are to be referred to a modification of magnetism or diamagnetism brought about by the peculiar structure of the crystal. Let us endeavour to penetrate this mystery of structure. Our next inquiry is—What direction is that which is chosen by the respective forces for the manifestation of their greatest energy? To this question the author imagines that a full and intelligible reply is returned by experiment. If the arrangement of the component particles of any body be such as to present different degrees of proximity in different directions, then the line of closest proximity (other circumstances being equal) will be that of strongest attraction in magnetic bodies, and of strongest repulsion in diamagnetic bodies. The torsion balance furnishes us with the means of submitting this conclusion to a direct test. A quantity of bismuth was ground to dust in an agate mortar, gum-water was added, and the mass was kneaded into a stiff paste. This was placed between two glasses and pressed together. From the mass when dried two cubes were taken, the line of compression being perpendicular to two of the faces of each cube and parallel to the other four. Suspended by a silk fibre in the magnetic field, upon closing the circuit the line of compression turned strongly into the equatorial position, exactly as the plane of most eminent cleavage in the case of the crystal. The cubes were placed one upon each end of the torsion balance, first with the line of compression parallel to the axis of the cones, and secondly perpendicular thereto; the repulsion in the former case was to the repulsion in the latter in the ratio of 53 : 30. A greater differential action was thus exhibited in the case of the model than in the case of the crystal. A pair of cubes constructed in the same manner from powdered carbonate of iron exhibited an analogous predominance of attraction in the line of compression. Against this mode of experiment an objection was urged during the meeting of the British Association at Edinburgh last year by Prof. Wm. Thomson, of Glasgow. "You have," he said, "reduced the mass to powder, but you have not thereby destroyed the crystalline form; your powder is a collection of smaller crystals,—and the pressing of the mass together gives rise to a predominance of axes in a certain direction, so that the repulsion and attraction of the line of compression which you refer to closeness of aggregation is after all a product of crystalline action. Besides, we know that compressed isinglass exhibits the same optical phenomena as crystals, and you are unable to prove that the action is not due to a *quasi* crystalline structure induced in the gum by compression." The following experiment will set this point at rest. It will not only show the influence of compression apart from the mere arrangement of the axes or from the influence of the gum, for none will be used; but it will also demonstrate the total nullity of this presumed axial force where opposed to the influence of compression. To this experiment I was conducted by the following accident. The investigation was conducted in Berlin, and the great electro-magnet of the University was beside me at the time. Some notion of the power of this magnet may be gathered from the fact, that the copper helices alone which surrounded the iron pillars which composed the magnet weighed 243 pounds. On the top of the pillars two moveable masses of soft iron were placed, each weighing about 25 pounds, and between these the substance to be examined was suspended. Before I had thoroughly made the acquaintance of the instrument I hung a fine cube of bismuth crystal between these moveable poles; on closing the circuit the planes of most eminent cleavage receded to the equator. Scarcely, however, was this attained when I observed the poles moving towards each other, and before I could break the circuit they had rushed together and clenched their iron jaws upon the crystal. The latter was reduced by the pressure to about three-fourths of its primitive thickness, and it immediately occurred to me that if the theory of proximity were true it ought to tell here. The pressure brought the particles of the crystal in the line of compression more closely together, and hence a modification, if not an entire reversion, of the former action might be anticipated. Having liberated the crystal, I boiled it in hydrochloric acid, so as to remove any impurity it might have contracted by contact with the iron. It was again suspended between the poles, and completely verified the foregoing anticipation. The line of compression, that is, the magnecrystallic axis of the crystal, which formerly set from pole to pole, set now equatorial. The experiment was then repeated with a common vice; various pieces of bismuth protected by plates of copper were placed within its jaws, and there pressed to the thickness of a shilling. The plates thus obtained when suspended from their edges in the magnetic field exhibited one unvarying result:—the line of compression stood always equatorial, and it was a matter of perfect indifference whether this line was the magnecrystallic axis or not. In these cases no

gum was used, and not only was a predominance of axes present, but they all worked together; they were further assisted by the great mechanical advantage offered by such plates to diamagnetic repulsion; the line of compression nevertheless triumphed over all and determined the position of the crystal. The author concludes his paper as follows: "Whoever denies the influence of proximity will have to answer the following questions:—How is it possible that a greater differential action can be exhibited by a cube of bismuth dough than by the crystal itself? What is it which causes the magnecrystallic axis to forsake its usual position and to set equatorial when the crystal is compressed in the direction of that axis? He must further assume a crystalline structure on the part of wax, flour, shale, and the pith of fresh rolls; for in all these substances the line of compression determines the position of the mass in the magnetic field."

At the conclusion of the paper, Prof. FARADAY rose, and spoke at some length on the valuable contribution to science which had been brought before them by Dr. Tyndall. It afforded him great gratification that there was one at least among us who had followed up this important subject so perseveringly. The beautiful laws established by Dr. Tyndall proved the identity of magnetism and diamagnetism in one important particular,—a result which he always anticipated; and if the crystalline action could be explained by what might be called the gross mechanical experiments brought before them, the discovery was one of the utmost consequence. It gave him pleasure to be able to propose a question to one who had worked so long at the foundations of this matter. Many philosophers had affirmed that it was possible to convert attraction into repulsion, and *vice versâ*, by merely varying the magnetic power: this was contrary to his own experience, and he wished to ask Dr. Tyndall whether he had ever met a case of the kind.—Dr. Tyndall stated in reply that he had diligently sought for such a case, but had never succeeded in finding it.

Prof. FARADAY felt prepared to admit that some of Dr. Tyndall's results seemed to promise an explanation of Plücker's perplexing results and conclusions; but for his own part he was anxious to keep his mind free from bias, to get well-established facts, and to free them as much as possible from all circumstances which could mark, or disguise, or mislead in the interpretation of them,—and such being his fixed determination and settled habit, he was rather at a loss to remember to what portion of his publications on the subject Dr. Tyndall referred when he considered him to have considered the facts now brought forward as improbable.

Mr. T. K. WATTS gave Accounts of a Lunar Rainbow, of a Snow Storm, and of an Aurora,—and Mr. RANKINE described a still more rare phenomenon which he had on one occasion witnessed of a Lunar Fog Bow.

MONDAY.

Col. SABINE read a 'Report on the Kew Magnetographs.'—The author said that at the request of the Council he was about to give the Section a brief account of the experimental trial now making at the Kew Observatory of Mr. Ronalds's Instruments for the self-registry of the variations of terrestrial magnetism by means of photography. These instruments had been described at former meetings:—but it was deemed advisable to subject them to a practical trial to test their efficiency as a means of recording the magnetic phenomena in any part of the world where science might require them to be better known. Before, however, it could be known in what degree they might be useful either as auxiliary or as superseding altogether the method of observation previously in use, it was necessary that three instruments should be provided,—one for the variations of declination and two for those of the horizontal and vertical components of the forces. The limited funds at the disposal of the Association for the purposes of the Kew Observatory barely enabled them to complete two of these instruments between the years 1846 and 1850; and the third must have yet been waited for had not the President and Council of the Royal Society, seeing the importance of the object, appropriated a portion of the sum placed at their disposal by Government to this purpose. The three instruments being now completed, Mr. Ronalds proposed to the Council that a six months' trial should be made of the working of these instruments precisely as they would be in an observatory, and that every item of expense incurred in that practical trial should be carefully noted and faithfully reported. The Council of the Royal Society having approved of this trial, a grant was made from the donation fund of 100*l*. The six months' trial commenced in April last, and when it shall be completed a full report will be made to the Council of the Royal Society. In the mean time it was thought that a brief report of the progress so far made would be acceptable. In Mr. Ronalds's instruments the magnetic variations are recorded either on silvered plates or on prepared paper. The silvered plates have the advantage of greater sensibility, and in consequence require a less time of exposure to the light,—so that movements of a more rapid character or more transient duration may be recorded by them; also, they produce more sharply defined traces; they are free from the defects arising from inequalities of surface, and the stretching and shrinking of the paper by being wetted and dried. The paper, on the contrary, has the advantage that the original tracings and records of the variations can be preserved,—a matter impossible with the plates, except in some very rare and interesting cases. In coming to a just conclusion in this comparative estimate of the merits of each method, the practical object to be attained should be kept in view. No doubt a mere inspection of the actual tracings as shown either on the plates or the paper possesses an interest both to the uninstructed and to those more familiar with the phenomena; and amidst the great variety of them some may have light thrown on them by a close inspection and consideration of the trace itself. But, as in astronomy the great advance of the science has followed the combination of measuring apparatus with optical power,—so in terrestrial magnetism the various periodical and other causes which in their joint action produce the variations, require that the traces of them should undergo tabulation as an indispensable preliminary to their practical application. In Mr. Ronalds's plan the tracings when taken on the silvered plates are tabulated with tolerable rapidity, and are then copied by hand with a graver's tool on sheets of transparent gelatine paper,—an operation requiring about a quarter of an hour to copy the twenty-four hours' work of the instrument. Both sides of the trace being marked, this can be done after a little practice with very considerable accuracy. The copies thus made are arranged in a journal and preserved. The original plate, except in rare cases, is then cleared off for new work. The gelatine paper is transparent, durable, and bears handling so well that impressions can be freely taken on paper with printers' ink and a small press; which on days of unusual disturbances can be sent by post to other observatories. The measuring and taking the means and tabulating the tracings are a far more serious operation as far as time is concerned; but under the able management of Mr. Welch, to whom Mr. Ronalds has intrusted this department of the experimental trial, this can be all accomplished for the twenty-four hours' work in about three-quarters of an hour,—and thus the great advantage of producing a continuous record is obtained. The plates as used at Kew are 12 inches long, and every twelve hours are reversed,—thus giving a second tracing on each plate. The breadth there used is 3 inches which is found to be ample. But in parts of the globe where great disturbances prevail and where at the same time great precision is required in the variations of small amount, a larger field than 3 inches may be desirable and may be given. It has been found by the concurrent experience of several that the tracings on the plates can be read off with full confidence to the 500th of an inch. This gives in the 3-inch plate 1,500 distinctly recognizable points. Taking the declinometer as an easily understood example, a single division of the scale is made equal to 6 seconds: the range of the scale will therefore extend to $6 \times 1{,}500 = 9{,}000$ seconds, or 2° 30′. Great stability and freedom from shaking of Mr. Ronalds's apparatus is obtained by binding together all parts which have reference to each other by marble or metal, and only using wood for outside casing. Another great advantage is, the constancy of the zero line, which is insured by mechanical contrivance. The zero line has thus a permanent magnetic value which remains unchanged as well from day to day as at all times of the same day. The time of the exposure to the light by which each part of the tracing is at present taken is 1½ minute. It is, however, probable that by improvements in photographic preparations, the trace may hereafter be taken by exposure of much less duration; also that the length of the magnets, now 12 and 15 inches, may be greatly reduced. Both these improvements appear to be required if we desire that the trace should individualize perturbations succeeding each other with great rapidity.

The ASTRONOMER ROYAL said that, while he admitted that at Kew the photographic method of registering these or similar observations was first introduced successfully, and that the methods there used were essentially the same as those of Mr. Brook, which had been adopted at the Royal Observatory, Greenwich, he could not help thinking that there was one important distinction. In Mr. Brook's method, a sheet of photographic paper wrapped on a cylinder received and recorded the working of the instrument; and these original records, carefully dated, were kept. Where silver plates were used it was of course impossible to preserve the original records; after the tracings were transferred by hand to the gelatine paper the silver plates had to be cleaned off, otherwise it is obvious they would soon multiply to a number too expensive and cumbrous to be used. Now, he had strong doubts that any person could transfer by hand all the minute fluctuations of the instrument; he did not now speak of the great magnetic storms, the indications of which were so constant and universal, but he alluded to those sudden, slight, but now important agitations which the instrument seemed to undergo after working on each side of its mean position with great steadiness. And yet, from the recent discovery of Prof. Faraday as to the varying relations of oxygen to magnetism by alterations of temperature, it became highly probable that these same slight waverings of the magnetometer would be found to have an interest attached to them hitherto altogether unsuspected.

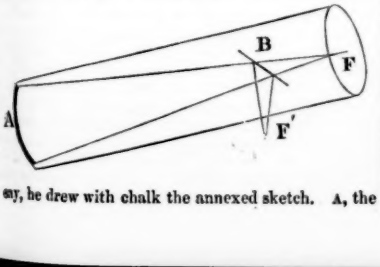
'On our Ignorance of the general course of the Tides,' by Dr. WHEWELL.—In 1833 Dr. Whewell published in the *Philosophical Transactions* an essay towards a first approximation to a map of co-tidal lines; in which he attempted, from the data then accessible, to draw lines expressing the course of the tide wave all over the ocean. So far as the coasts are concerned, this mode of expressing the course of tides is still held to be the best; but our materials, which were scanty at the former period, are very incomplete even yet, with the exception of the coasts of Europe and the east coast of North America, the east coast of Australia, and the east coast of New Zealand. In order to trace the course of the tides on any coast, we ought to know the points of divergence and of convergence of the tidal wave. We do not know these points on the west coast of Africa, or on the east coast of South America; and consequently we do not know the course of the tides of the Atlantic,—nor do we know the relation of the tides of the Atlantic islands (the Ferroes, Azores, Bermudas, Cape Verde Islands, &c.) to the tides of the coasts. It was urged that the course of the tides in this and other oceans could not come to be known except by an expedition, consisting of one or two small vessels, which should have for its primary and governing object the obtaining a connected knowledge of the tides of the coasts of the Atlantic, in the first place, and of those of other oceans afterwards.

The ASTRONOMER ROYAL said that the inquiries to which Dr. Whewell had now directed their attention had an object definite, intelligible, and most important, whether we considered it practically in its bearing on commerce and our navy, or as an object of pure science, in furnishing the data requisite for advancing our knowledge on this interesting yet intricate branch. In such a case he found it to be always a most important matter to make a beginning, however humble, and from his own experience he could assure Dr. Whewell that he felt convinced if a proper application were made to the Government to observe the tides carefully in the manner pointed out by Dr. Whewell in some limited locality,—say in the Atlantic Ocean,—such an application

would meet with the attention which it so well deserved, and which he at all times found the Government cheerfully to bestow on such matters. He had not the least objection, should such an application be deemed proper by the Committee of Recommendations, to join Dr. Whewell or any Committee which should be named in pressing such an object on the attention of Her Majesty's Government.—Capt. FitzRoy, R.N. said that as Dr. Whewell had done him the honour of alluding to his exertions and opinions on this interesting, and to every sailor important, branch of science, he would beg leave to make a few remarks. In the first place, he must bear his testimony to the accuracy of the statement of the learned gentleman who had brought the subject before them as to the extreme intricacy and puzzling character of the general phenomena, and our deplorable ignorance of extensive fields of research in it. It was known to most of those whom he addressed that Sir John Herschel in his very delightful work estimated the average height of the rise of the tide over the whole surface of the earth to be five feet; and from all the attention he could bestow on the subject and the best estimate he could form, guided by long continued and very widely extended actual observations of the tides, he believed this to be a very correct opinion. And yet most who heard him were aware how widely in several localities this average was departed from. Several localities could be pointed out where the total rise of the tide was to be spoken of as inches; while in other, and frequently not very distant, places, the rise was six, seven, eight, or more fathoms. Capt. FitzRoy then stated, that along the entire western coast of South America the tides could scarcely be said to be earlier or later at one place than at another,—as for hundreds of miles, indeed nearly as far as Panama, they might be said to occur at the same time, though they only rose four or five feet. At the Straits of Magellan they were very remarkable; on the west side they rose but a few feet, say four or five, but on the eastern side they rose to the enormous height of seven or eight fathoms, and this within a few miles the one place of the other. He considered this to be accounted for thus.—On the western side they partook of the general character of the tides of the Pacific along the coast,—but on the east, the great tide from the Atlantic setting in through the Straits and meeting the tide coming from the west, the waters became heaped up to the extraordinary height he had stated. He then proceeded to mention several other peculiarities and anomalies of the tides in the Great Pacific Ocean:—and said that a general review of them had led him to throw out the conjecture alluded to by Dr. Whewell, that in this great basin the tides seemed to be at one time urged forward by the luminary as it passed along over them towards the west, and then afterwards seemed to surge back again towards the east; and in this motion to and fro the waters of this great basin might be conceived as a whole to partake; while yet the motion of no one part need move more than a very few feet from its place.

'On the Comet of Short Period discovered by Brorsen, February 26th, 1846, and its Re-Appearance in 1851,' by Dr. Van Galen.

The Earl of Rosse said that, having observed by the public prints that the President of the Association had, in his inaugural address, done him the honour of alluding with approbation to the attempts which he had lately made, and with considerable success, to produce plane speculums of silver for reflecting telescopes,—he thought it might be acceptable to the Section to receive a brief account of them, and he had therefore come down from London that morning to give them such an account. In order to help their conception of what he had to say, he drew with chalk the annexed sketch. A, the great concave speculum at the bottom of the telescope tube, collecting the rays of light which came from a radiant point placed at a great distance beyond the mouth of the tube to its conjugate focus F. These rays were then intercepted by the small mirror B, and by it reflected to the focus F towards the side of the tube where they were received by the eye-piece of the telescope. Now, speaking roughly, it was found that about one-third of all the light which fell upon the great speculum A was lost in the act of reflexion,—and that of the remainder a considerable portion, but not quite one-third, was lost by the second reflexion at B. Of course, since quantity of light is of the utmost importance to the performance of these tubes, this rendered it a matter of the utmost importance either to get rid altogether of the second reflexion at B or to obtain some means of producing it subject to less loss of light than that caused by speculum metal; and accordingly, Sir William Herschel, the first who had succeeded in producing reflecting telescopes on a large scale, had, by inclining the great mirror slightly, brought the direct image F to the side of the tube into such a position that it could be received directly into the eye-piece. But it was found that correct images could not be produced in this oblique position by speculums of the ordinary form,—and as yet a means of grinding them to a form that would give correct oblique images had not been successfully devised. He had received numerous and some most ingenious suggestions for placing the observer in such a position as to view the image F directly at the middle of the tube. One difficulty to be got rid of was, that the head and person of the observer would itself abstract much of the light that should be permitted to proceed to the speculum to be there reflected to form the image. Another was, that the temperature of the body of the observer, so much higher as it was than the surrounding air, tended to produce ascending currents, which both produced a wavering motion and an incorrectness of the image quite fatal to the accurate performance of the instrument. These could, perhaps, be guarded against,—and he had received many most curious and some very ingenious plans for disposing even of the entire body of the observer by lying along in a tube properly and well-ventilated with means for conveying away the breath and heated air out of the telescope tube without interfering with the air in the tube itself. But one element in the problem seemed most strangely to have been overlooked by all, and yet he was bold to say it was the most important of any; he alluded to the diffraction caused by the head of the observer, or by the box or case in which it was proposed to encase it or himself. The effect of this diffraction upon the performance of the instrument would become more injurious also the larger the profile of the object which stopped off the light. Under all these difficulties, he had come to the conclusion that all attempts at viewing the direct image must be abandoned. He then turned his attention to prismatic reflexion, in which comparatively much less light was lost. But he found it impossible to obtain large and sufficiently well-formed prisms to insure the best action. But having obtained a very fine prism of a small size by a distinguished optician, he determined to try it. This required the prism to be placed much nearer to the apex of the cone of light reflected from the great speculum (F), and then the eye-piece required to be of such a form as greatly to diminish the field of view, a matter of the most serious import in the researches of the nebulæ in which he was engaged. This difficulty, however, he had surmounted by first using the larger reflector (B) to examine an extensive field of view, though less perfectly,—and then, by a simple contrivance, turn it aside out of the cone of light, and more minutely examine the limited field of view afforded by the prismatic reflexion. Yet after all, he found this most injurious to the work of making accurate drawings of the appearances. But another still more serious difficulty is fatal to this mode of reflecting,—namely, that although guided by the research of M. Jamin, and using the formulæ afforded by Cauchy, and every other formula he could conceive or arrive at the knowledge of, both as to polarized light and aberration, he had altogether failed in making this eye-piece achromatic; and if any mathematician of the Section could supply him with the means of securing this result, he would feel himself under great obligations to him, and would cheerfully furnish him with the precise data of the problem. Under these circumstances, he perceived that there was no resource but to improve metallic plane reflectors as much as possible. Now, it was well known that in reflexion by silver much less light was lost than by any of the other metals,—but, unfortunately, this metal was so soft, that great difficulties presented themselves in giving it the requisite degree of high polish. He had tried by the electrotype process to procure a surface with a high polish by depositing silver on a surface of speculum metal, and treating it by the same process as that used by the distinguished officers engaged in the Trigonometrical Survey of Ireland. But, unfortunately, he soon found that, use what precautions he would, either there took place an adherence of the deposited silver to the surface on which it had been deposited, or the polish was rendered imperfect by the means resorted to to prevent this. He tried copper similarly, which did not adhere, but produced a high degree of polish,—but of course its colour and other properties rendered it inadmissible as a reflector. He then determined to endeavour to grind and polish a plane surface of silver, the softness of that metal having, however, heretofore caused the attempt to fail in the hands of the most experienced who had tried it. The processes of grinding and polishing are essentially different:—in grinding, the substance, whether emery or other powder, must run loose between the substance which is used to rub it against the other and that which is to be ground; and he soon found that he could not use emery or any other grinding powder for bringing a surface of silver to a correct form,—for, from the softness of the metal and the unequal hardness of its parts, the emery was found to confine its action to the softer parts, leaving the harder portions in elevated ridges and prominences, something in the way that the iron handle of a pump which has been long and much used may be observed to be worn away. Hard steel he found he could bring to a very true surface, and even impart to it a high degree of polish; but the quantity of light it was capable of reflecting was by no means sufficient, nor could he succeed in imparting to the surface of silver by compression with highly-polished steel surfaces the evenly and highly-polished surface requisite for his purpose. At length, he found that he could by the use of good German hones grind surfaces of silver perfectly true, and he had now no doubt that he could with safety recommend for that purpose as the best material the blue variety of the German hone. The next point was, to polish the surface to a true optical plane reflecting surface. This was by no means so easy a task as may be supposed:—for although our eminent silversmiths do produce surfaces of silver of an extremely brilliant polish, as in the magnificent plateaux and other articles which they turn out, yet if any one will take the trouble to examine these surfaces, they will be found to be so irregular, though highly polished, as to be entirely unfit for producing correct images by reflexion. And it is a singular fact that, although in the first part of the process of polishing chamois leather of the finest kind was used to rub the rouge on the silver surface, yet the finer finishing polish had always to be communicated by the human hand. Nor would the hand of every individual answer:—the manufacturer had to select those with the very softest and finest grain,—nor would the hand of perhaps one in every twenty of the persons employed answer for thus giving the final finish. But it was obvious that the irregular action of the human hand would by no means answer the end he had in view. Suffice it to say, that at length, after many fruitless trials, he had succeeded in producing a polishing surface which seemed fully to answer the purpose by exposing spirits of turpentine to the continued action of air, or by dissolving a proper quantity of resin in the spirits of turpentine, and by means of this varnish applying the rouge to the same description of polishing substance which he used in polishing the speculum metal, and which he had heretofore so frequently described. By the use of this polishing substance he had produced a plane surface of silver which, as far as the photometric means he had within his reach would enable him to measure the light before and after reflexion, did not lose in that action seven parts out of the hundred,



and which, tested in the manner which he usually adopted, defined admirably.

The ASTRONOMER ROYAL begged to know how Lord Rosse secured the plane form of the surface in grinding and polishing.—The EARL of ROSSE replied that, as to the mode of grinding, it was that commonly adopted for producing accurately flat surfaces. But the mode in which he tested it was peculiar. It was this:—a watch-dial was placed before a good telescope, and as soon as the eye-piece was accurately adjusted to the position of most distinct vision, the plane mirror was placed in front of it at an angle of 45°, and the watch-dial was moved round by a simple contrivance to such a position as that its image should very nearly occupy the place it had been just removed from. If now the adjustment of the telescope for distinct vision remained unchanged, the proper form had been attained; but, if by drawing out the eye-piece more distinct vision was obtained, it was concluded it had received a convex form,—if on pushing it farther in it gave the image more distinct, then it was concluded the mirror had received a concave form.—Prof. CHEVALLIER wished to know whether Lord Rosse intended to form the great speculum similarly of silver.—The EARL of ROSSE replied that he had at present no expectation of doing so. That it was a very different matter to grind and polish a speculum of a few square inches surface—which could be done by a small machine worked by hand, and from which to the eye-piece the light had to travel but about three feet—to executing the same operations over the surface of a speculum six feet in diameter, and from which the light after reflexion had to travel a distance of fifty-three feet. For Newton, with his usual sagacity, had long since shown that any error in the form of the object speculum of a reflector was a much more serious injury to the performance of the instrument than an equal error would be in the plane speculum,—and that for the identical reason he had just pointed out.

'Inquiries into some Physical Properties of the Solid and Liquid Parts of Plants,' by Prof. WARTMANN.

'On the Alten and Christiania Meteorological Observations,' by Dr. LEE.—Dr. Lee observed that he had had the honour of presenting to the Association some meteorological observations from Alten, in Norwegian Lapland, for several years; and that the usual supply of observations for the year 1850 had not hitherto arrived, owing to an accident that had occurred to the Standard Barometer in November 1849, and which could not be repaired at Alten.

Mr. JOULE suggested an improvement in M. Fay's instrument for sounding in deep seas.

'On the Meteorology of Southampton, with reduced Observations for Three Years,' by Dr. DREW.—This communication was considered by the Committee of the Section to be of sufficient importance to warrant them in recommending the reduced tables of observations to be printed at length in the next volume of the Reports of the Proceedings.

'Observations on the Aurora Borealis,' by Mr. E. J. LOWE, consisted of numerous observations of that meteor carefully recorded.

'The Annual Report on the Kew Observatory,' by Mr. RONALDS, was now read.

Mr. RANKIN's Meteorological Summary for Huggate, Yorkshire, for 1851 was read; and from Mr. J. WELSH a Description of the Hygrometric Sliding Rule for converting readings of horizontal and vertical force magnetometers into variations of dip and total force.

FRIDAY.

SECTION B.—CHEMISTRY—INCLUDING ITS APPLICATION TO AGRICULTURE AND THE ARTS.

Dr. FARADAY read extracts from a letter by Prof. Bergeman, of Bonn, and exhibited a specimen of Orangite, the mineral affording the new metal Donarium, which was stated as easily to be reduced by potassium and sodium, in preference to reduction by the gas hydrogen; and as fear had been entertained for the perfect preservation of the properties of the new metal if exposed to the chances of a sea voyage, as it readily tarnishes and oxidizes, the discoverer had thought it more expedient to send a specimen of the hydrated oxide of Donarium.—In allusion to the statement that Prof. Rose had repeated and confirmed these results, Dr. FARADAY expressed an opinion that chemists had of late years viewed with regret the increase in the number of metals, and hoped that the day was not far distant when some of the metals would afford honour to chemists by new modes of investigation leading to their decomposition.

'Observations on Atomic Volumes and Atomic Weights, with considerations on the probability that certain bodies now considered as elementary may be decomposed,' by Prof. DUMAS.—Prof. Dumas alluded to the solubility of some substances and the insolubility of others, giving many instances of the difference of this quality in regard to solution in water, sulphuric and strong acids, and referred to Berthollet's views and experiments on this subject. The measure or volume of bodies he thought might be represented with as much facility as the weight: thus, for example, magnesia and sulphuric acid may have their volumes numerically expressed before and after combination, and also graphically by lines. Magnesia with sulphuric acid showed a certain degree of condensation, lime a greater condensation, and barytes the greatest condensation; and these he could represent and reason on as well by lines of different lengths as by figures or by words. The degree of condensation (however expressed) had also relation to the quality or degree of solubility. Thus, sulphate of magnesia was very soluble, sulphate of lime but little soluble, and the greatly condensed sulphate of baryta was insoluble. He then pursued the analogy with the chlorides, comparing the chloride of sodium with the extreme case of the chloride of silver. After graphically expressing the solubility of bases with sulphuric acid by lines, he proceeded to show that the relative volumes of the elements chlorine, bromine, and iodine could be perfectly represented by lines equal in length. Prof. Dumas said that when a number of metals are represented by lines, at first they seem in confusion, and it would appear like an impossibility to arrange them in a system of lines to permit their relations to appear; but when considered in relation to the substitution of one property for another, or of the substitution of one substance for another in groups, then their arrangement became easy. And here we may remark, that Prof. Dumas had not previously prepared diagrams or tables, but covered a large black board with lines, figures, and formulæ, to follow his train of reasoning,—and symbols, volumes, and names were rapidly produced and as rapidly effaced to illustrate the Professor's views of the laws of the substitution of one body for another in a compound. Prof. Dumas gave many examples of groups of bodies, such as the alkalies, earths, &c., arranged in the order of their affinities. He called attention in the Triad groups, to the intermediate body having most of its qualities intermediate with the properties of the extremes, and also that the atomic or combining number was also of the middle term, exactly half of the extremes added together; thus, sulphur 16, selenium 40, and tellurium 64. Half of the extremes give 40, the number for the middle term. Chlorine 35, bromine 80, and iodine 125. Or the alkalies, lithia, soda, and potassa, or earths, lime, strontia, and baryta, afford, with many others, examples of this coincidence; hence the suggestion, that in a series of bodies, if the extremes were known by some law, intermediate bodies might be discovered; and in the spirit of these remarks, if bodies are to be transformed or decomposed into others the suggestion of suspicion is thrown upon the possibility of the intermediate body being composed of the extremes of the series, and transmutable changes thus hoped for. Prof. Dumas then showed that in the metals similar properties are found to those of non-metallic bodies; alluding to the possibility that metals that were similar in their relations, and which may be substituted one for the other in certain compounds, might also be found *transmutable* the one into the other. He then took up the inorganic bodies where substitutions took place which he stated much resembled the metals. After discussing groups in triads, Prof. Dumas alluded to the ideas of the ancients of the transmutation of metals and their desire to change lead into silver and mercury into gold; but these metals do not appear to have the requisite similar relations to render these changes possible. He then passed to the changes of other bodies,—such as the transmutation of diamonds into black lead under the voltaic arc. After elaborate reasoning and offering many analogies from the stores of chemical analysis, Prof. Dumas expressed the idea that the law of the substitution of one body for another in groups of compounds might lead to the transformation of one group into another at will; and we should endeavour to devise means to divide the molecules of one body of one of these groups into two parts, and also of a third body, and then unite them, and probably the intermediate body might be the result. In this way, if bodies of similar properties and often associated together were transmutable one into the other, then by changes portions of one might often, if not always, be associated with the other. Thus, in nature when chlorine occurred, iodine and bromine might also be found, and always would be if they were transmutable the one into the other. Cobalt is thus mysteriously associated with nickel, iron with manganese, sulphur with selenium, &c. In the arts during operations when certain radicles were produced, analogous ones were found constantly to be associated. In the distillation of brandy, oil of wine is always an associated result.

Dr. FARADAY expressed his hope that Prof. Dumas was setting chemists in the right path; and although conversationally acquainted with the subject, yet he had been by no means prepared for the multitude of analogies pointed out.—Mr. GROVE spoke of the importance of the view; as, by knowing the extreme compounds, it might serve as a guide in experiments and as a check to the results. He adverted to the allotropic condition of substances when their principal characters were changed but their chemical qualities were unaltered; thus, carbon in the state of diamond had a change of property so complete that it had one of the properties of metals given or transferred to it by its conducting power for electricity under these conditions, and its other forms were states resistant to electric passage. He thought this fact of certain bodies having two sets of physical properties with greatly differing character might, with this law of the substitution of one set of chemical qualities for another in a compound group, give the hope of the great realization of some of the ideas embodied in the views of the possible transformation of one body at will so as to possess the properties of others.—Prof. WILLIAMSON, Dr. ANDERSON, and Dr. GLADSTONE remarked on these analogies,—and referred to the groups of bodies of similar characters, but whose history was difficult or inexplicable. Thus, the metals of the platina group of bodies, the red states of phosphorus and of sulphur, the carrying of certain of these properties into the sulphurets of phosphorus, and the unsatisfactory history of bodies like the phosphates, might be rendered clear in future researches by the ideas resulting from numerous examples of the triad groups alluded to by Prof. Dumas.

'On Liquid Diffusion,' by Prof. GRAHAM.—Prof. Graham gave a view of some of the unpublished results to ascertain whether solutions of saline bodies had a power of diffusion among liquids, especially water.

'On the Constitution of Salts,' by Prof. WILLIAMSON.

SECTION C.—GEOLOGY AND PHYSICAL GEOGRAPHY.

'On Klinology in reference to the Bavarian Alps,' by Dr. SCHAFHAEUTL.—The Alps surpass all other European mountains both in grandeur and in complexity of geological structure. Their central ranges consist chiefly of crystalline and metamorphic rocks,—their borders of sedimentary strata; some of the newest of these strata have the greatest breadth, elevation, and mass, attaining a height of 10,000 feet above the sea. Fossils are often very scarce; and when they do occur, those of several formations have become mixed together, on account of the frequent repetition of the formations by mechanical displacement. Dr. Schafhaeutl recommends the study of the intimate structure of the beds,—a mode of investigation which he terms "Klinology." It has long been admitted that the newer rocks have generally a lower specific gravity, and are less compact or crystalline than the older strata; and the remarks of Ehrenberg have shown that the microscope may be employed to detect minute structural as well as

organic peculiarities. Even by placing rock specimens in distilled water, outlines and designs may be brought out which were before invisible; and still more may be learned by the application of hydrochloric acid, or by studying weathered surfaces. As examples of the importance of attending to minute characters, the author mentioned that the red sandstone of Berchtesgäden had been considered the equivalent of the old red schists of Salzburg; but he had detected the existence of green particles in this sandstone, and had traced them to a distance increasing in numbers until the red sandstone became green, and was clearly recognizable as a lower member of the Cretaceous group. In a similar manner he had ascertained that the black, lias-like schist of M. Beseler, in the western Bavarian Alps, was also "greensand." Microscopic fragments of characteristic shells, like the Caprotina, had been found by him where entire specimens were wanting; and in some of the lofty Alpine limestones, which are destitute of fossils, he had detected microscopic remains which showed their origin, like that of the chalk formation, to have been intimately connected with "the wide-spread and powerful-working spirit of life developing itself in forms invisible to the unassisted eye."

'On the Geology of a part of the Himalaya and Tibet,' by Capt. STRACHEY.—Capt. Strachey pointed out on a large map the great elevated region of Central Asia, extending from the sources of the Oxus to the Yellow River of China; bounded on the north by the Kouenlun mountains, on the south by the Himalaya, which form the southern face of the elevated region, rather than a separately existing chain. Little is known of the interior and northern part of the region, but it appears to be broken up into a mass of mountains, where valleys as well as the ridges have a very great elevation. The observations of the author relate to the centre of the Himalayan chain, between the river Kalee and the Sutlej, a space of 200 miles, and extending N.W. from the plain to a distance of 120 miles.

'On the Drift and Surfaces of Rocks on the Coast of Scotland,' by Sir R. I. MURCHISON.—The rocks on the coast of Loch Fyne, near Inverary, were described as being worn and striated on their N.E. face and rugged on the opposite side; the striæ were in a direction parallel with the Loch, and sometimes ten or fifteen feet long. They were particularly observed near the fishing village of Kenmore, where the rocks of chlorite schist were smoothed and striated on the surfaces away from the sea. Similar observations were made on the coast between Ben Cruachan and Oban. Connecting these with the phenomena formerly observed on the east coast of Scotland, Sir R. Murchison was of opinion that Scotland during the glacial period had formed a narrow rocky tract penetrated by deep fiords; that there might have been glaciers on some points, but that the worn and polished rocks were chiefly to be attributed to the descent of masses of gravel and blocks moving down along with great debacles of ice and snow on the successive upheavals of the region in an icy sea.

Mr. HOPKINS exhibited a map of the lochs and mountains around Ben Cruachan, with the distribution of the trains of granite blocks which he had described last year at the Edinburgh meeting. He had formerly been unable to explain by what means the granite blocks supposed to have been derived from Ben Cruachan had crossed the mountain group between Loch Fyne and Loch Lomond, so as to gain access to the latter, and form a stream extending to the Clyde and Glasgow. Since then, he had discovered in this very mountain group a granitic tract not marked on the geological maps, in the immediate vicinity of Loch Sloy, at a height of from 1,500 to 2,000 feet, and agreeing in mineral character with these travelled blocks, which may therefore have descended Loch Long and Loch Lomond with the same facility that the granite blocks of Ben Cruachan have entered Loch Aure, and those of Loch Etive have reached Oban and Kerrara. Mr. Hopkins then referred to the possible causes of the dispersion of the granite blocks;—if by currents from the sea, then the country must have been depressed nearly 2,000 feet, as Wales is believed to have been about the same period;—if transported by floating ice, independently of glaciers, then also the country must have had a lower level;—terrestrial glaciers might also have been the agents, if their existence was allowed. The position of the blocks in horizontal streams along the sides of the lochs, at an elevation of four or five hundred feet, and their character—being at first large and angular, but becoming smaller and more rounded, until they were mere water-worn pebbles,—were circumstances opposed to the supposition that floating ice or terrestrial glaciers were the principal agents in their removal. If floating ice had been the cause, then the sphere of dispersion would have been much greater. In Glen Ray he had observed indications of what he considered true moraines. He was still inclined to believe that more than one of these methods had been in operation, and that the whole mass of the Highlands had been the centre of divergence from which the blocks had been dispersed.

The DUKE of ARGYLE referred to Mr. James Smith's observations on the shores of the Gare Loch, in confirmation of the statement that the course of the blocks and striated surfaces was only locally uniform, and that it followed the valleys and arms of the sea whatever might be their direction.

MONDAY.

'On new Fossil Mammalia from the Eocene freshwater formation at Hardwell, Hants,' by Prof. OWEN.—The specimens described were from the collection of the Marchioness of Hastings, and belonged to the genera Paloplotherium, Xiphodon, Dichodon, and Hyænodon. The genus Paloplotherium (Owen) is the link which connects the tapir, rhinoceros, and palæothere with the hippothere and horse. It differs essentially from the Anoplotherium in having a long interval between the molar and canine teeth, and in having the external nostril formed by six bones instead of four. From Palæotherium it differs in having only six molars on each side of the upper jaw. The species (*P. annectans*) found at Hardwell also occurs in the lignite formation of Gargas, Vaucluse. The genus Dichodon agrees with Anoplotherium in having an uninterrupted series of teeth; remains of two species (*D. cuspidatus* and *dorcas*) have been found at Hardwell. Of the genus Xiphodon an almost entire lower jaw (distinct from the *X. gracilis* of Cuvier) has been obtained. Also an entire lower jaw of the Hyænodon:—a genus "so remarkable amongst the carnivorous order for retaining the normal formula of the dentition of monophyodont placentals, and for the truly carnassial form of the three true molars." The Hardwell specimen agrees with the *H. minor* of M. Gervais, from the lacustrine marls of Alais.

'On the probable Dimensions of the great Shark (*Carcharias megalodon*) of the Red Crag,' by Mr. BOWERBANK.—The teeth of this fish are common in the coprolite beds of Suffolk; but although exceedingly hard, they are usually much water-worn, and have nearly always lost the serrated edges which are so well preserved in specimens of the same species from Malta. The teeth of the upper jaw may be known from the lower teeth by their comparative narrowness and thickness; those from the sides of the jaws are progressively smaller and shorter. The largest specimens measure from 4½ to 5 inches in length. In order to give some idea of the magnitude of the creature to which they belonged, Mr. Bowerbank exhibited the jaws of the largest known specimen of the *Carcharias glauca* of Australia; it was killed by a whaling crew, when after having gorged itself on their captain, it seized the boat sent in its pursuit. It measured 37 feet in length; its vertical gape is 25½ inches, its horizontal 20½ inches; the length of its largest teeth 2⅝ inches. From the measurements it is inferred that the fossil shark must have had a gape of at least 5 feet by 6, and an entire length of not less than 65 feet. This estimate is not at all improbable, as there exists a (comparatively harmless) species—the basking shark—in the British seas, of which one individual, killed off Brighton, measured 36 feet, and one which was stranded in the Orkneys, and described as a "sea-serpent," exceeded 50 feet in length. Looking at the mineral character of these fossils, and their association with the teeth of a second Maltese shark (*Oxyrhina hastalis*), not found either in the London clay or coralline crag, Mr. Bowerbank was inclined to regard them as having been derived from the destruction of some older clay deposit, perhaps an extension of the great miocene formation of southern Europe.

Sir C. Lyell and the Rev. Barham Zincke exhibited a large irregular and marine chalk flint, and rounded pebbles of flint and phosphate of lime, from the red crag at Wherstead. These specimens, and many others in the same layer of shingle, have their *upper* surfaces overgrown with small barnacles, showing that, for a time at least, there was not sufficient movement in the sea to overturn the small pebbles, which must have been at a very small depth, if not actually between tide marks.

'On the Echinodermata of the Crag,' by Prof. E. FORBES.—These fossils, amounting to twenty species, are mostly obtained from the coralline crag. They consist of two new Comatulæ, not related to the existing British, but to Indian species; a unique specimen of a star-fish from the Red Crag, identical with the recent *Uraster rubens;* four Echini, of which one is the common British species, *E. sphera;* three species of Temnopleurus,—a genus not now living in the Atlantic, but living in India, where it also occurs fossil; two species of Echinocyamus, one identical with the British *E. pusillus;* fragments of an Echinoneus; two species of Spatangus, one *S. purpureus*, the other, *S. regina* (Gray), of Malta; a species of Amphidotus; and lastly *Brissus Scillæ*, which occurs both living and fossil in the Mediterranean, but is properly a tropical Indian form. In this assemblage there is a mixture of Celtic with Indian types, and an absence of characteristic Lusitanian forms; as if during the crag epoch there had existed a communication with the eastern seas, but a barrier to the south:—a conclusion which would harmonize with Mr. Searles Wood's inferences from the shells of this formation.

'On the Discovery by Dr. Overweg of Devonian Rocks in North Africa,' by Prof. E. FORBES.—This was an announcement of an important discovery made by Dr. Overweg in Fezzan, whence he has sent specimens of true Devonian rocks with fossils identical with those of the Devonians of the Sierra Morena in Spain. No palæozoic rocks have hitherto been discovered in Africa north of the line; and this new fact may probably prove of consequence in explaining the physical and organic peculiarities of Africa,—and, taken in connexion with the fact of the existence of Devonian rocks in the Cape region, may indicate a palæozoic axis running north and south through that continent.

'On the Remains of a Gigantic Bird from the London Clay of Sheppy,' by Mr. J. P. BOWERBANK. The specimen described is a fragment of one of the bones of the extremities; it is 4 inches long and 1 inch in diameter at the larger end, and is somewhat three sided, with rounded angles. The thickness of its walls is from ¾ of a line to 1¼ lines; its microscopic structure exhibits the characteristic bone-cells of animals of the bird tribe.

'On the Pterodactyles of the Chalk Formation,' by Mr. BOWERBANK.—The author exhibited drawings and restorations of remains of these winged reptiles, showing that the great species of the chalk (*P. Curieri*) must have had a spread of wing equal to 16 feet 6 inches; whilst a second large species (*P. compressirostris*) was estimated at 15 feet. The largest species previously well known, the *P. macronyx* of Buckland, from the lias, was only computed at 7½ inches from tip to tip of its expanded wings.

'On the age of the Copper-bearing Rocks of Lakes Superior and Huron, and various facts relating to the physical structure of Canada,' by Mr. W. E. LOGAN.

'On the Silurian Fossils of Canada,' by Mr. J. W. SALTER.—Lower Silurian, Allumette Island. These are regarded as forming one group, intermediate between the Potsdam sandstone and the Hudson River series, and agreeing with the Trenton limestone of New York.

Mr. LOGAN exhibited the slab of Potsdam sandstone, with tracks like those of a tortoise, which is regarded by Prof. Owen as proving the existence of an air-breathing four-footed animal at the very earliest period of known animal life.

Prof. E. FORBES exhibited the new species of Maclurea referred to by Mr. Salter, and its operculum,—and stated that he regarded it as one of the floating forms which appear to have been common in the Silurian period. The shell, however, is described by Mr. Salter as "strong and massive," and

in appearance it is extremely like the English *Capprotina Lonsdalii*. Its operculum is still more like the smaller valve of an Exogyra, and is furnished internally with a strong tooth-like process and a second roughened prominence. It has a minute umbilicus on the *right* side, whilst the broad flat whorls are exposed on the left.

THURSDAY.

SECTION D.—NATURAL HISTORY, INCLUDING PHYSIOLOGY.

President—Rev. Prof. HENSLOW.
Vice-Presidents—Prof. OWEN, Messrs. C. J. F. BUNBURY, C. C. BABINGTON.

Secretaries—Dr. E. LANKESTER, Prof. ALLMAN, Mr. F. W. JOHNSON.
Committee—Mr. G. Bullen, Dr. Baird, Rev. — Clowes, Mr. T. S. Gowing, Bishop of Oxford, Messrs. R. Taylor, A. Henfrey, C. C. Babington, Prof. E. Forbes, Mr. G. Ransome, Dr. W. Francis, Messrs. W. Thompson, R. Patterson, Lieut.-Col. Portlock, Messrs. R. Ball, P. Duncan, T. H. Huxley, C. W. Peach, J. E. Winterbottom, Capt. R. Strachey, Messrs. R. Wigham, W. H. Harvey, R. M'Andrew, J. Gould, Sir W. Jardine, Bart., Messrs. H. E. Strickland, J. King, C. R. Bree, Dr. Hake, Dr. Tilt, Dr. Hodgkin, Mr. A. Pritchard, Dr. Durrant, Messrs. J. D. Llewelyn, J. S. Bowerbank, T. Spurgin, J. Clark, Prof. Asa Gray, Sir W. J. Hooker, Dr. T. Williams, Dr. J Hooker, Mr. H. Denny, Dr. T. Ashton, Dr. E. Lyon, Messrs. G. S. Gibson, A. Peckover, Dr. Roget, Prof. Macdonald, Col. L. Masi, the Prince of Canino, Dr. Daubeny, Prof. Bell.

Dr. LANKESTER drew attention to two Reports which had been forwarded by Mr. Matthew Moggridge and Mr. Haden to the Committee appointed for the Registration of Periodical Phenomena. There had not been time to analyze these papers, and contrast the results with those afforded by the papers sent to the Committee last year. Those papers were, however, published in the last volume of the Transactions, and observers in all parts of the country might now compare notes. The present season had been in many respects peculiar, and any facts which had been observed by members would be interesting to the Section. Some observations which had been made by Dr. Forster at Brussels proved an unusual backwardness in vegetation, and the absence of many animals and plants which usually appear at this season of the year.

Mr. RODWELL observed, that he had been in the habit of noting the periodical phenomena of birds, and never recollected so great a scarcity of the swallow tribe as during the present season. Both the cuckoo and the nightingale had been ten days later than usual in making their appearance, as also the earwig.—Mr. PEACH had seen one swallow on Good Friday last.—The swifts were first to appear at Peterhead. He had seen no sand martins, and the house martin was very scarce.—Mr. BUNBURY had observed that the very early spring plants had all blown unusually well,—as the snow-drop, the hazel, and the winter aconite. During March and April no progress was made. The swallows appeared about the 16th of April. All the tribe of Hirundinæ had, he thought, been as abundant as usual near his residence.—Mr. M'ANDREW observed that the martins and swallows had been in unusual numbers this spring at Malaga.

'On the Theory of the Formation of Wood and the Descent of the Sap in Plants,' by Dr. LANKESTER.—The author drew attention to the theory of the formation of wood in plants, and objected to the view that the leaves form the wood, on the ground that the ligneous like all other tissues were the result of the growth of cells which were not formed in the leaves, but in all parts of the plant. Wood was formed in all parts of the plant where elongated cells were generated, quite independently of leaves, or the formation of leaves:—as in the lower part of the cut wounds of the stems of plants, in the portions of trunks left when trees were cut down, in the abortive branches formed in the bark of such trees as the elm and the cedar, and in other parts of the vegetable structure. He also objected to the theory of the formation of the ligneous or any other secretion, which might be subsequently appropriated by the cells, in the leaves alone. He maintained that all the facts brought forward to support the theory of the descent of the sap might be explained on the known fact of the ready permeability of the tissues of the plant. He related the details of experiments performed on the species of spurge; in which the fluid was found to exude from the stem and branches in these plants just in proportion to the quantity of fluid contained in the plant above or below the section made. The cells of plants were nourished in two ways:—first, by the sap containing carbonic acid, ammonia, and other substances,—and secondly, by materials, as sugar, gum, &c., formed in the cells. These latter were not formed solely in the leaves, but in all cells. He regarded the leaves as organs by which the water of the sap was got rid off, and by this means a further supply of sap from the earth and atmosphere was insured. This function was performed in subservience to changes which were attributed to a specific vitality.

Prof. HENSLOW said that he agreed with the views of Dr. Lankester with regard to the theory of the formation of wood proposed by Du Petit Thouars. He thought it was evident that whatever was the function of the leaf, it did not send down the woody fibres which formed the trunk and branches of exogenous trees. The tracing the woody fibres up to the leaf did not prove their origin there. With regard to the descent of the sap, he did not agree with the author of the paper,—who, he thought, took too physical a view of the function of the plant. The leaves were not mere organs of evaporation. They performed the function of exhalation, which was independent of heat, and depended on the vitality of the plant. He believed that the leaves did effect a certain change in the juices brought to them, which changed matter was again taken back into the system of the plant, and there being taken up by the cells produced the results which were found in the deposit of lignine and the other secreted matters of plants.—Mr. HUXLEY quoted the instance of the rapid growth and great quantity of wood formed by the various kinds of Liana of tropical forests as instances in favour of the formation of wood independently of the leaves. These plants had all of them a remarkably small number of leaves.—Prof. ASA GRAY believed that the theory of the formation of wood, as held by Du Hamel, Du Petit Thouars, and others, was no longer tenable. The formation of vessels from cells could be easily observed, and in exogenous plants there was no vacuity between the wood and the bark for the woody fibres to be sent down through. Even in the spring of the year, when the sap was passing most rapidly between the wood and the bark, the organic connexion was complete. Whether matter was elaborated in the leaves and sent down into the plant he was not prepared to say, but further experiments were desirable.—Dr. FOWLER quoted some experiments which he thought proved that the materials of the growth of the plant were not prepared in the leaves.—Dr. LANKESTER replied, and stated that at present it appeared to him that the statement of the preparation of gum or any other secretion in the plant which was found subsequently in any other part of the plant, was an assumption that required proof,—and that all the phenomena of vegetation were susceptible of a simple explanation.

'On Sea-sickness, and a new Remedy for its Prevention,' by J. ATKINSON.—The writer alluded to the method of curing sea-sickness proposed by M. F. Curie, in the 'Comptes Rendus' of the French Academy of Sciences, September 30, 1850: which consists of drawing in the breath as the vessel descends, and exhaling as it ascends on the billows,—being based on the supposition that the complaint arises from the upward and downward movements of the diaphragm acting on the phrenetic nerves in an unusual manner. After remarking on various motions—as those produced by swinging and by riding in a carriage—by which nausea is often induced, and showing that voluntary operations performed by mechanics and labourers involving the same kind of movements of the diaphragm, &c. do not cause similar unpleasant results, he proceeded to detail the method which he had found successful in preventing sea-sickness, as follows.—Let a person on shipboard, when the vessel is bounding over the waves, seat himself, and take hold of a tumbler nearly filled with water or other liquid, and at the same time make an effort to prevent the liquid from running over, by keeping the mouth of the glass horizontal, or nearly so. When doing this, from the motion of the vessel, his hand and arm will seem to be drawn into different positions, as if the glass were attracted by a powerful magnet. Continuing his efforts to keep the mouth of the glass horizontal, let him *allow* his hand, arm, and body to go through the various movements—as those observed in sawing, planing, pumping, throwing a quoit, &c.—which they will be impelled, without fatigue, almost irresistibly to perform; and he will find that this has the effect of preventing the giddiness and nausea that the rolling and tossing of the vessel have a tendency to produce in inexperienced voyagers. If the person is suffering from sickness at the commencement of his experiment, as soon as he grasps the glass of liquid in his hand, and suffers his arm to take its course and go through the movements alluded to, he feels as if he were performing them of his own free-will,—and the nausea abates immediately, and very soon ceases entirely, and does not return so long as he suffers his arm and body to assume the postures into which they *seem* to be drawn. Should he, however, resist the free course of his hand, he instantly feels a thrill of pain of a peculiarly stunning kind shoot through his head, and experiences a sense of dizziness and returning nausea. From this last circumstance the author of the paper infers it as probable, that the stomach is primarily affected through the cerebral mass, rather than through a disturbance of the thoracic and abdominal viscera; and he is of opinion that the method of preventing sea-sickness just described (which he has found by experience to be effectual) depends on the curious fact that the involuntary motion communicated to the body by the rolling and tossing of the vessel are by the means he adopts apparently converted into voluntary motion.

The reading of this paper caused some discussion on the nature of sea-sickness; and some of the members promised to give it an early trial.

'Description of a New Form of Sponge-like Animal,' by Mr. T. H. HUXLEY.—The author described a gelatinous substance found in almost all seas, in masses varying in size, from the size of a pea to that of a walnut. This mass is an animal of extreme simplicity, analogous to the Pulmellæ in the vegetable kingdom, and consists of a number of simple cells, united by a gelatinous connecting matter, containing siliceous spiculæ. The author pointed out the importance of this creature as connecting the Sponges Gregarinidæ and Polythalamata.

The SECRETARY exhibited two species of Apteryx, from the Ipswich Museum. One was the *Apteryx Australis*, which had been long known to naturalists,—the other was a new species of which only two specimens at present existed in Great Britain, and had been dedicated to Prof. Owen under the name of *A. Oweni*. These birds were of interest on account of their relation to other forms of birds which are now extinct.

Mr. PEACH exhibited some preserved specimens of two species of Crustacea found in the Greenland seas, and which constitute a part of the food of the sperm whale;—also, some specimens of a Crustacean, and a species of Diphys found in the sea off Peterhead.

'Report on the Structure, Habits and Classification of the British Annelidæ,' by Dr. T. WILLIAMS.—Under the auspices of this Association, about two years ago, I entered upon the study of the British Annelidæ, with conceptions very disproportionate to the difficulties which I was destined to encounter. In the absence of any systematic account of this obscure but interesting class of animals, I found myself limited to the precarious guidance of a few desultory contributions from the pen of Johnston, Leach, Montagu and Ellis—distributed at distant times throughout the periodical works of British zoological literature. With the exception of those of Dr. Johnston of Berwick, of whose name in connexion with this branch of Natural History I desire here to make grateful and honourable mention, I have constantly experienced the greatest difficulty in availing myself of the researches of the earlier English observers. Confused and inaccurate diagnoses, making the identification of the species impossible, rendered it essential to the augmentation of our knowledge to resort *de novo* to nature, and thus to amass facts oftentimes before observed. It is not a little remarkable that no British comparative anatomist has used the appliances at the command of the modern observer to the study of the structure of the Annelidæ. In explanation of this fact it cannot be alleged that any peculiar difficulties opposed, in this field, the fruitful application of the microscope,—for in this class of animals many species exist of which the anatomy is capable of complete solution under the microscope. Anatomists even to this day entertain very erroneous ideas with reference to the "principle of structure" governing the organization of the Annelidan. The segments, arranged

linearly, of which the body is composed are only externally repetitions of one another. The Annelid is not a multiplex unity. There is only one head, and the senses, rudimentary though they be, exist only on the head. As commonly stated, the reproductive organs are not distinct for, and repeated in, every ring of the body. There is a centre to this system, of which the outlying portions are but contributory and not co-ordinate parts. There is also a centre to the circulating system, although less obviously than to the digestive apparatus, of which the successive parts are subordinated links. From this statement, it may be inferred that the views which commonly prevail with reference to the regenerative powers of these animals are greatly exaggerated, if not altogether incorrect. A true head is never re-produced. If a worm of any species, the *Nais filiformis*, for example, upon which the principal of my observations have been instituted, be cut into two parts, the anterior never reconstructs a true tail, nor does the posterior ever reorganize a true head,—but both fragments will live for a considerable time, and the anterior extremity of the posterior fragment will suck in nourishment, swell in size, and become more vascular, while it preserves the distinctive organization of one of the middle rings of the body. It never re-forms a true head. As the generative system is situated in the middle of the body, in the bisection of the body the system must be bisected,—a circumstance which alone would render either of the two moieties imperfect individualities. The class Annelida includes the higher types of the vermiform subdivision of the articulated series,—that in which the body is more or less elongated and worm-like in aspect, and is destitute of articulated members. The body is divided transversely, more or less conspicuously, into rings or annuli. In all cases in which lateral appendages to the body exist, they are found to be borne only by every second or third or fourth ring,—the intermediate ones being smaller than those supporting the feet. The appendages constituting the feet, varied in different genera and species in endless diversity, include for the most part three separate and distinct organs. The setæ or hairs enact a purely mechanical part in progression and in the construction of tubes and passages. The cirrhi are flexible and fleshy processes whose office is exclusively tactile,—and lastly, the true branchiæ, which in different species differ in a most remarkable manner, are in all distinguishable obviously from the cirrhi by a peculiarity of ultimate structure. No part of the body of the annelid is so characteristic of species. These parts, therefore, have become among naturalists the true grounds of specific classification. In true structure these organs are subject to no variations in individuals of the same species: in size and relative developement they present perplexing varieties. The nervous, circulating, and alimentary systems throughout the class, as a whole, exhibit a far greater uniformity of character. In this class, however, as in all others, the character of the food determines the anatomical arrangements of the digestive organs:—for amongst the annelidans there are species which live exclusively on animal food, forming a carnivorous division,—as the Lininæ, Serpentariæ, and Borlasiæ, and probably many of the Planariæ. The genus Syllis embraces only phytophagous species, which principally subsist on algaceous vegetables. The Nereidæ and Enniadæ are chiefly omnivorous:—that is, they swallow, like the Arenicola, a considerable quantity of sand, from which, in the process of digestion, the animal and vegetable matter is separated. The Tubicolæ, both the sedentary and errant species, are also omnivorous; but in their case the prehension of food is accomplished in a very different manner from that which obtains in the preceding omnivorous genera. Here the tentacles are so arranged as to bear directly upon the mouth. It is not, however, in all cases, as in the Sabellæ, by their mechanical action that the tentacles are useful as bearers of food to the mouth. They are the scene of a rich clothing of vibritile cilia, of which the action is such as to cause a vigorous current setting directly upon the mouth,—whilst at the same time it fulfils the purposes of respiration. In the Terebellæ, however, on the prehension of food the action of the tentacles is exclusively mechanical. The true limits of this class were first correctly indicated by Pallas, in the 'Miscellanea Zoologica.' To Lamarck, however, is due the honour of having first conferred upon it its present name. The title '*Vers à Sang rouge*,' used by Cuvier, suggested incorrect ideas. In his article in the 'Encyclopædia Britannica,' Leach used the term *Vermes*, adopted only by De Blainville, in his article 'Vers,' in the 'Dictionnaire des Sciences Naturelles.' Prof. Owen, in his lectures on Invertebrate Animals, has adopted the word *Annellata*, the proper Latin adjective of the substantive *annellus*, the diminutive of *annulus*, itself traceable to the radical *annus*, (*i. e. circulus*). MacLeay has made the latter word *annulus* the root of the name applied by him to this class, hence the word *annulata*. Milne-Edwardes and Prof. Grant, and other writers, have constructed the Latin participle *annelida* out of the Anglicised word *annelide*. The latter designation, as most in accordance with the spirit of our language and at the same time more susceptible of English use, seems to me to have grown into general employment. In conformity with custom, I therefore select it as the name of this class hereafter in my estimation to be employed among English naturalists. In their general organization, the *Annelidæ* present a considerable advance upon the higher Trematoid and Nematoid Entozoa, to which they seem most nearly allied. The head being provided with special organs of sense, and the mouth having an apparatus for the reduction and prehension of food,—the intestinal canal, though sometimes simple, being frequently furnished with complicated glandular appendages,—the circulating system being much increased in extent and complexity, and a special respiratory apparatus being almost invariably developed,—and the nervous system being formed on a higher plan, the two neutral cords being closely approximated to each other on the median line, and being studded with a succession of distinct ganglia, which correspond with the segments. In the arrangement of this class, systematic naturalists have adopted the respiratory system as the basis of classification. As will be subsequently seen in the numerous exceptions which occur, this system of organs constitutes by no means an unexceptionable basis for systematic arrangement. In the *Tubicolæ*, for example, it is defined that the branchial appendages are situated around the head, the rest of the body being encased in a tube. To this definition the very typical genus is an exception. In *Labella alveolata* the branchiæ are disposed along the back, while the head is plumed with only tentacles. This conformation pervades also in *Leucodore ciliatus*, a minute but elegant tubicolous worm. And, moreover, a great variety of the tubicolous worms are abranchial—that is, wholly destitute of appendages: the Naides, for instance, are tubiculous. These observations apply in a still stronger degree to the order denominated *Dorsibranchiata*. In this order, without exception, the branchiæ affect a lateral and not a dorsal situation. The very type of the order, the *Arenicola piscatorum*, exhibits the branchiæ below the setiferous processes of the upper foot limited to the *middle* third of the body. In the genera Euniciadæ, Nereidæ, and Phyllodociadæ the branchial appendages are invariably members of the dorsal foot. *Labella alveolata* and *Leucodore ciliatus* are the only real dorsibranchiata; but in the Cuvierian arrangement they are not comprehended at all in this order. In a new genus of annelids, which for the present I have denominated the genus *Cambria, probably* identical with the genus Spio, or Neriné of Dr. Johnston, the branchiæ arise from the *inferior* aspect of the ventral foot—entitling the species rather to be called ventro-than dorsi-branchiata, and yet they rank among the dorsibranchiata of Cuvier and Edwards. The third of the orders into which the Annelidæ are separated comprehend genera no less incongruous—but agreeing in the general fact of the absence of branchiæ. It is, however, one description of occupation to detect the fallacies of nomenclature, and another to construct a vocabulary of faultless and significant words. Imperfect as the terminology of the naturalist with reference to this class of animals may be, it is yet wiser and more in accord with custom to continue in the employment of language which custom has woven into the texture of our common speech, than labour to invent a new nomenclature which the progress of science at some future day may demonstrate as no less faulty and inappropriate.—*Anatomy.* I have the pleasure to present to the Association practical proofs of having devoted myself industriously to the work of investigating the organization of the Annelidæ. This labour has, I think, been crowned with good success. I have reason to believe that the anatomical descriptions which in this place will accompany the illustrations in the published Report will prove of some value as an addition to the comparative anatomy of the invertebrate animals. If time permitted, I find that it would be quite impossible to render intelligible by verbal description the numerous and complex details on points of ultimate structure, which will appropriately find a place in the published Report, without the assistance of numerous and expensive diagrams. It will be observed that no part of the organization of the Annelidan offers such constant characters as the *setæ*. In minute microscopic investigations of doubtful species they afford valuable characters for exact specific classification. This is also true with reference to the hooks of the *Tubicolæ;* organs, as will be seen, of remarkable conformation, and singularly well adapted for the office which they are required to perform. I have found that the division established by Prof. Owen among the Entozoa in the Cælel- and Sterel-mintha applies with singular propriety to the Annelida. Although this class does not range itself into two *equal* divisions, as tested by this point of structure, for the cælel-minthous would far outnumber the sterel-minthous species,—yet the fact of the presence or absence of a peritoneal cavity involves a radical difference in the general structure of the worm. The peritoneal cavity in the Annelidæ is always charged with a fluid bearing in suspension compound corpuscles and driven to and fro in the containing cavity, partly by the agency of muscular and partly by that of ciliary action. The larger the proportion of this fluid the smaller the quantity of true blood,—as determined by the degree of developement to which the true blood system of vessels may have attained. The fluid is always corpusculated,—the true blood is always uncorpuscular.—Dr. Williams's Report was illustrated with upwards of 200 drawings:—and several members expressed the hope that these beautiful illustrations would be published with the Report.

FRIDAY.

'On the Structure of the Branchiæ and Mechanism of Breathing in the Pholades and other Lamellibranchiate Mollusca,' by Dr. T. Williams.—The researches of the author, which were illustrated by numerous diagrams, had led him to the following conclusions:—1st. That the blood in all Lamellibranchiate mollusca is richly corpusculated.—2nd. That the branchiæ in all species are composed of straight parallel vessels returning upon themselves. 3rd.—That the heart is systematic.—4th. That the parallel vessels of the gills are provided with vibritile cilia disposed in linear series on either side of the branchial vessel, causing currents which set in the same direction as the blood currents.—5th. That in Pholas the syphons are richly lined with vibritile cilia as well as the branchial plates.—6th. That the branchial syphon acts in drawing in water into the chamber of the mantle by the dilating of the valves of the shell.—7th. That a part of the water which is thus drawn into the branchial chamber is swallowed, and eventually rejected by the fœcal orifice, and that the rest is expelled by the orifice in the mantle, and in part by the branchial orifice.—8th. That this expiratory fluid is surcharged with carbonic acid and fluid secretions furnished by the interior of the mantle.—9th. That this current, escaping with force against the walls of the cell in which the animal lives, acts as a solvent upon the particles disintegrated by the action of the valves:—that the boring of the pholades can, therefore, only be explained on the principle which involves a chemical as well as a mechanical agency.

Prof. Phillips alluded to the various theories which had been given of the mode in which the species of mollusca bored into the rocks in which they lived. He believed that neither an exclusively chemical nor an exclusively mechanical theory would account for the phenomenon, and he was inclined to adopt the view which had been so ably maintained by the author of this paper.

The Secretary read a paper from Mr. ROBERTSON 'On the Boring Operations of *Pholas dactylus*,' in which the author clearly traced a portion of the effect produced by the animal on the rock in which it lived to a rotatory action of the shell. This movement never moved the animal more than half round in its hole, and sometimes not so much as this.

Prof. E. FORBES stated that there were three ways of explaining the effect or boring by Mollusca:—1st. by the valves; 2nd, by the secretions; 3rd, by siliceous particles studding the tissues. Dr. Williams's theory adopted the two former modes of operation,—with which he was disposed to agree; but Mr. A. Hancock still maintained that the latter was the mode in which the boring was effected.

'On the Mechanical Operations of the Boring and Tubicolous Annelides,' by Dr. T. WILLIAMS.

'On Some Indications of the Molluscous Fauna of the Azores and St. Helena,' by Prof. E. FORBES,—Great interest attaches to the malacology of the islands of the Atlantic on account of its bearing on inquiries into the ancient conformation of land in that region and the causes of the distribution of organized beings. We have so few data respecting the invertebrates of the Azores and St. Helena, that every fragment of fresh information becomes of consequence. The author has lately had opportunities of examining a small collection of land shells gathered in the Azores by Mr. Macgillivray, the indefatigable naturalist who accompanied the surveying voyage of H.M.S. Rattlesnake, and also a small parcel of the littoral and sublittoral molluscs collected at St. Michael's and sent to Mr. M'Andrew. From St. Helena he has recently received a quantity of the shells cast on the shore, and a few recent and subfossil land shells, collected by Mr. Alexander, a student of King's College. Out of eight species of land shells from Fayal, in the Azores, one is a new form of Bulimus, allied to a Maderian species,—two are *Helix paupercula* and *Pupa anconostroma*, both Maderian,—one is the *Helix barbula* of Charpentier, an Asturian and Gallician species,—two, *Helix pisana* and *Bulimus ventricosus*, are widely distributed South and West European forms,—two, *Helix aspersa* and *H. cellaria*, are cosmopolites, diffused probably owing to transportation by men. Of the marine shells from St. Michael's, *Purpura Læmastoma, Haliotis tuberulius, Metra fulva, Nochus langreri*, and Triton (*variegatum*), are characteristic Lusitanian species, ranging also through the Mediterranean. A Littorina is not European; it is the *Littorina striata* of Capt. King, a species remarkable for being common to the Azores, Madeira, the Cape de Verds, and the Guinea Coast. A starfish sent with the shells is the common *Urasta spinosa* of Europe. The shells brought by Mr. Alexander from St. Helena are equally interesting. To the six land shells already known he adds three, a Succinnea, a Bulimus, and a Helix; the last representing, but very distinct from, the *Helix Guerincaria* of Madeira. Our knowledge of the marine shells of Madeira has hitherto been entirely due to Mr. Cuming; who, during a brief visit to that island, dredged for a long time in forty fathoms water on a soft muddy bottom. The shells he obtained (and of which he has most liberally communicated his lists) belonged to the genera Cardium, Cytherea, Metra, Clavatula, Pleurotoma, Nassa, Scalarda, Eutoma, Pyramidella, Trochus, Delphinula, Turritella, Natica, Bulla, and Hyalinda. The species proved, so far as they have been examined, to be, as they seemed to be to Mr. Cuming at the time he captured them, all peculiar. To these genera Mr. Alexander adds specimens of *Lucina Donax* (?) Hipponyx (?) Acmæa, Siphonaria, Fissurella, Gena, Marginella, Cypræa, Conis, Cassis, Columbella, Cerathum, Forsarus, and Rissoa. In the British Museum there is an unnamed Littorina from St. Helena closely representing, but distinct from, the *Littorina striata* above alluded to. Several of the above-named shells are too young for determination, others are decidedly new. The known species not peculiar are, *Cassis testiculus, Cypræa lurida, spurica*, and *moneta, Conus Guineacus*, Var. *krotta, Marginella millarea*, and *Natica caurena*. The Forsarus is not the Senegal shell, but the *F. Cumingii*. Several of the above are common to the West Indies and Mediterranean.—The author infers from these facts that the coast-line of the ancient land of which the Atlantic islands north of the line are fragments had a bend indicated by the distribution of the *Littorina striata;* and that the ancient connexion of the Azores with the Lusitanian land on the one hand and Maderian on the other, as previously maintained by him, is supported strongly by these additional data. On the other hand, the facts concerning St. Helena indicate, as the indigenous vegetation of that island had previously done, that it had been insulated from a very ancient period and had never been connected with the continent. At the same time, the marine molluscs would seem to point to the submergence of a tract of land, probably linking Africa with South America, before the elevation of St. Helena. Along the sea-coast of such a tract of land the creatures common to the West Indian and Senegal seas might have been diffused.

Prof. PHILLIPS admitted the justice of Prof. Forbes's conclusions, though some of them were opposed to received geological opinions. It must be admitted that if the same forms of plants and animals appeared on opposite coasts, it was fair to infer that those coasts were at one time united. If from such facts we might infer that there was once a connexion between the Highlands of Scotland and the mountains of Scandinavia, between the centre of England and Germany, between Ireland and Spain,—so we might infer from the same facts a connexion between England and America. When we found the same animals in rocks over a wide district—as, for instance, in the Silurians of England, Asia and America,—we concluded there had been a connexion between these seas, which had produced these rocks. Why should not the same argument hold good with regard to the distribution of animals and plants of the present day? Although the area appeared large for which this distribution was demanded, the areas of the distribution of certain forms of animals—as of fishes—was larger at the present day than any demanded for the distribution of the older strata of the earth.—Prof. E. FORBES stated that there were no areas of distribution larger in the older rocks than they were at the present day, and illustrated this statement by reference to the distribution of *Saxicava rugosa* and other animals.—Mr. C. J. F. BUNBURY said that the indigenous Flora of St. Helena was very peculiar, and not like any other:—so, also, were the Mollusca. The Flora of the Azores resembled that of the south of Europe, and not that of America. There was undoubtedly at one time a connexion between Africa and South America; but proofs of this connexion must not be looked for in the present Flora and Fauna,—as probably that connexion was dissolved before the present era.

'Observations on the Geographical Distribution of the Land Mollusca,' by Mr. L. REEVE.—This paper consisted of a few additional observations of the geographical distribution over the globe of a tribe of snails, recently published by Mr. Reeve in the 'Annals and Magazine of Natural History.' It was doubted at the time whether a system of typical arrangement could be formed upon the consideration of a single genus,—whether an examination of all the forms and species was not essential. It being a work of considerable labour to collect the data for this inquiry, the author submitted a preliminary outline of his views from a consideration of the Bulimi only. He was now working upon the genus Helix, and found the results to be perfectly similar. The inquiry was founded on a consideration of the shell—not on account of the difficulty of procuring observations on the animal, but because it offered a readier and more varied set of characters. The animal differs immaterially in form and generic character in any of the genera of land mollusca, but the shell varies according to the physical conditions by which it is surrounded. These groups of forms appear to be so many expressions of the calcifying organ of one and the same mollusc, depending on the laws and circumstances of organic distribution. On comparing his map of the distribution of land mollusca with that of the marine mollusca by Prof. E. Forbes, Mr. Reeve pointed out some points of resemblance where the areas of sea distributions of types corresponded with those on the adjacent land.

Prof. E. FORBES thought that we should not arrive at accurate views of the distribution of the land mollusca until their structure and relations were more perfectly understood. He regarded Bulimus as only a group of the great genus Helix. In order to arrive at correct conclusions on this point, the structure of the teeth of the Mollusca must be studied.

'On a new Testacean discovered during the Voyage of H.M.S. Rattlesnake,' by Prof. E. FORBES.—Among the collections made by Mr. Macgillivray is a new genus of Gasteropodous molluscs, floaters in the manner of Santheria, but having close affinities of shell, unival and operculum, with Jeffreysia. It appears to throw new light on the nature of Macluria, and the so-called Palæozoic Littorinæ. Prof. Forbes proposes to name this curious shell *Macgillivraya*.

'Account of Researches upon the Structure of the Acalephæ,' by Mr. T. H. HUXLEY.—The object of the present communication is to give some account of a portion of the investigations made by the author during the circumnavigatory voyage of H.M.S. Rattlesnake, under the command of the late Capt. Owen Stanley. The author describes the structure of the Phyrophoridæ and Diphydæ, illustrating the peculiarities of their organization by drawings of several of the species. The Diphydæ are shown to be chains of polypes, provided with peculiar natatorial organs,—the Phyrophoridæ to be similar chains, sometimes provided with similar natatorial organs, but always possessing a peculiar "float," formed by a dilatation of the polype-stem, containing a vesicle of air. The zoological relations of these two families are next inquired into. An attempt is made to show that, together with the Beroidæ, Medusidæ, Hydroiæ and Authozoic Polypes, they form a well defined class of the animal kingdom,—for which the author proposes the name of the *Nematophora*, from the very general diffusion of the peculiar "thread-cell" throughout the class. The Nematophora being once separated, the author endeavours to show that the rest of the Radiata are on the one side related to the Mollusca, on another to the Annulosa, and on the third to the lowest plants—so that the class Radiata, as such, must be broken up.

Prof. E. FORBES said that Mr. Huxley's researches had thrown great light on the structure and affinities of the group of Radiate animals. He was not prepared to adopt all Mr. Huxley's views,—but they were entitled, he felt assured, to the most mature consideration of naturalists.

The Secretary read a paper from Messrs. ALDER and HANCOCK, giving an account of two new Nudibranchiate Mollusca. One was a new species of the old genus Eolis,—and the other a new genus altogether. The anatomy of the latter was given by Mr. A. Hancock. The paper was illustrated by drawings of the forms and anatomy of the creatures described.

SECTION E.—GEOGRAPHY AND ETHNOLOGY.

[We should have stated in our last report that on Thursday this Section was visited by His Royal Highness Prince Albert.]

'On Ethnographical Classification, considered with peculiar reference to the two unsolved Problems in Indo-Germanic Philology,' by the Rev. J. W. DONALDSON.—The two unsolved problems in Indo-Germanic philology are,—first, the amount and nature of the affinity which connects the Indo-Germanic and Semitic branches of the human family,—secondly, the origin and interpretation of the ancient Etruscan language. These two questions depend on a satisfactory definition of the Asiatic starting-point and European limits of the Sclavonian emigration; and in order to arrive at this definition it is necessary to review the general principles of classification. The comparative anatomy, &c. of the different races of men is not at all calculated to explain the facts of our science or to assist us in classifying the different families. With this view, it is obvious that there can be but four elements in the inquiry: first, philology,—secondly, old ethnical and local names,—thirdly, history and tradition,—fourthly, physical or descriptive geography. Taking all these sources of information, we find that the Sclavonians may be traced back to the most westerly position in Iran,—*i. e.* to a close contact with the Semitic or Syro-Arabian race; and the ethnographical or *primâ facie* conclusions are fully confirmed by linguistic and palæographic arguments. Some particularly interesting inferences may be drawn from the degree in which the Medo-Sclavonian and Semitic tribes respectively have adopted or introduced alphabetic writing. In the other, or European, extremity, we find that the

Sclavonians at their western boundary line are either intermixed with or opposed to the Scandinavian or Low-German branch. History informs us that the Etruscans were of Rhætian origin, and it can be shown that the Rhætians must have been Low-Germans. Now, by the accident of the migration to Iceland it happens that the old Scandinavian language has been preserved in a very pure form. As, therefore, the Icelandic language alone furnished either lexical or grammatical explanations of those of the Etruscan inscriptions which are least connected with the other Italian languages, it follows that the non-Pelasgian elements of the old Etruscan language must be Scandinavian or Gothic.

His Excellency Chevalier BUNSEN confirmed the statements made in this document, to which he attributed much importance.

'A Summary of Recent Nilotic Discovery,' by Dr. BEKE.—After briefly recapitulating his views with regard to the physical character of the table-land of Eastern Africa, the position of the sources of the Nile in the Mountains of the Moon, and the course of the direct stream of that river and of its several tributaries,—namely, the Bahr-el-Ghazal or Keilak, the Sobat or Godjeb, the Bahr-el-Azrek or Astapus, and the Atbara or Astaboras,—Dr. Beke adverted to the explorations of the Rev. Mr. Rebmann and Dr. Krapf in Eastern Africa, to their discovery of the Snowy Mountains Kilimandjaro and Kenia, and to the information obtained by them respecting the Great Lake in the country of Uniamezi, or Mono-Moezi. He then gave an account of Dr. Knoblecher's recent ascent of the direct stream of the Nile as far as 4° 9′ N. lat.; where he ascertained that that river comes from a considerable distance farther south, and apparently from beyond the equator, as its waters were beginning to rise on the 16th of January, 1850. The distance from the extreme point reached by Dr. Knoblecher to Mount Kenia is 370 geographical miles, and to the lake in Uniamezi it is 360 miles; and the basin of the Nile is apparently confined within these limits,—unless, indeed, the river should be found to flow out of the lake itself. Kenia is not improbably the "high mountain the top of which is quite white" which was described to Baron von Müller as containing the source of the Bahr-el-Abyad. These results are in general accordance with the statements of Ptolemy respecting the sources of the Nile in the Mountains of the Moon—as elucidated and explained by Dr. Beke on former occasions.

This paper was explained more fully by Chevalier BUNSEN, who expressed his entire concurrence in its contents.

Mr. J. CRAUFURD read a voluminous paper 'On the Geography of Borneo,' superadding a description of the condition of the island and of its chief products—illustrated by historical references.

M. D'ABBADIE read a 'Synopsis of Seventy-two Languages of Abyssinia and the Adjacent Countries': —a document interesting to such as are versed in the subject, but not of a character suitable to a general reader.

The following extract of a letter from M. Khanikoff to Mr. Stevens, on his ascent of Mount Ararat, was read by Mr. CULLEN,—who translated it as he read from the French language in which it was written. It was dated Tiflis, Oct. 22, 1850, and was (in English) as follows.—"We were with Col. Khodzko and four other travelling companions upon the snow-crowned head of this graul, 17,000 English feet high, during the 6th of August. The ascent does not present upon the side which we attempted —that is to say, the Natchwaco side—any great difficulties;—above all, with the ample means which we had at our disposal—consisting of cossacks, soldiers, peasants, beasts of burden, tents, provisions and such like. For myself, I remained twenty-four hours on the top; having maintained an uninterrupted series of horary observations of the barometer, the thermometer, and the psychrometer, to determine the diurnal change in the pressure of the air, the temperature and the humidity at so considerable a height. I descended with Dr. Maretz; but Col. Khodzko remained from the 7th to the 12th, having to make a series of observations on terrestrial refraction,—while the unstable condition of the limpidity of the air during the unfavourable summer of the last year did not permit him to work without great interruptions. What shall I say of the effect of this vast height on men's constitutions? It does not make itself felt except on the organs of respiration—which are considerably oppressed by the rarity of the air; of which the mean pressure on the sea-coast corresponds with a height of mercury in the barometer of 760 millemètres, while on the summit of the Great Ararat it was only 410 millemètres. This causes a certain inconvenience to be felt all over the body, and makes one feel that the circulation of the blood is not carried on as usual. As to the other symptoms indicated by several travellers—such as tightness of the skin, loss of blood by the lips, the gums, the ears, and even the eyes, consequent on a nervous excitement resembling delirium,—nothing of the kind was experienced by any of us. In fact, the inconveniences of our position, which certainly was not very comfortable, arose not from the height at which we were, but from the cold which prevails at that height—to be experienced everywhere around in winter—and from the snow on which we lay and in which our little tent was overwhelmed. During the greater part of the time the thermometer was between 9° and 27° Fah.:—which, with the violent wind that prevails constantly in these regions forms a temperature not very agreeable."

An extract from a paper by Mr. SAULL was then referred to;—but its almost exclusively archæological character rendered it in Mr. CULLEN's opinion an inappropriate document for the Section.

The remaining papers on the list were postponed.

SECTION F.—STATISTICS.

'Statistics of the Attendance in Schools for Children of the Poorer Classes,' by Mr. J. FLETCHER.—This was an elaborate abstract of the attendance, ages, and instruction of the children in about 160 schools, two-thirds British and one-third Wesleyan, inspected with reference to the apprenticeship of pupil-teachers, in the course of the year 1850.

'On the Mathematical Exposition of some Doctrines of Political Economy,' by the Rev. Dr. WHEWELL.—This communication was principally the substance of two memoirs lately issued to the Cambridge Philosophical Society. The author stated his object to be, to replace the arithmetical examples often used by writers on political economy for the sake of illustration by algebraical formulæ, which should show the general purpose of illustrating the changes of the quantities involved, and the limits within which the asserted propositions were true.

Prof. HANCOCK said that he was convinced of the great use of the precision of mathematical reasoning in economic investigations; and he thought that when so much had been done for the natural sciences by the application of mathematics, nothing could be more desirable than to see the social sciences studied in the same spirit of strict and accurate investigation.

M. GUERRY exhibited eighteen coloured maps illustrating some important conclusions respecting the criminal statistics of England for sixteen years ending 1850. He had brought over from France a similar series of maps to illustrate the same points in the criminal statistics of France; but as they had been placed in the Great Exhibition, he had been unable to get them out for the purpose of producing them to the Section. The leading point which he had established for France was, that the common opinion respecting the intimate connexion between mere instruction and the absence of crime in particular districts when compared was mistaken. The facts on which the calculations in the English maps were founded were taken from the tables drawn up by Mr. Redgrave of the Home Office for all the time that had been collected. Each map was constructed to show the prevalence in each county in England of a particular crime, or class of crime, such as murder, manslaughter, arson, larceny by servants, offences against the game laws, bigamy, &c. As to bigamy, there was a most remarkable difference between England and France,—that crime appearing to be much more prevalent in England. He accounted for this circumstance by the difference in the forms of marriage required by law, which afforded much greater facilities for tracing personal identity in France than in England. The English maps were constructed to the degrees of criminality as measured by the average number of the accused for the whole period of sixteen years as compared with the average population as ascertained by the three censuses of 1812, 1831 and 1841. Besides the maps, he showed a series of tables exhibiting, by curved lines, for each county, the degrees of positive and negative criminality corresponding with the coloured maps. As to the French maps, there were one or two points which he was anxious to notice. The geographical distribution of instruction among all the young men of twenty years of age in France was easily observed in consequence of the mode used for selecting the soldiers for the French armies. He had analyzed the returns made of these young men by the prefects of France to the Minister of War for twenty-two years ending 1849,—and the result as to parallelism of distribution of mere instruction and absence of crime which he had stated seventeen years ago in his work on the 'Moral Statistics of France' was fully borne out. This second analysis had established another interesting result,—that the progress in the amount of instruction in each department of France, instead of being in the districts where most wanted, had on the contrary been, with singular regularity, in the districts where the greatest instruction had previously prevailed.—A discussion, followed in which Messrs. FLETCHER, J. HANCOCK, GOWRING, and Prof. HANCOCK took part.

THURSDAY.

SECTION G.—MECHANICAL SCIENCE.

President—Mr. W. CUBITT.
Vice-Presidents—Messrs. J. NASMYTH, J. SCOTT RUSSELL, W. FAIRBAIRN.
Secretaries—Messrs. C. MANBY, J. HEAD.
Committee—Messrs. R. Roberts, C. May, R. Ransome, Col. Morin, Messrs. G. Appold, R. Stephenson, E. Hodgkinson, Prof. Willis, Mr. J. Whitworth, Gen. Poncelet, Messrs. H. Chapman, H. Warriner, G. Hurwood, G. P. Bond, C. B. Robinson, G. Bayley, G. Rennie, W. Simms.

Mr. R. ROBERTS explained his mechanism for demonstrating the rotation of the earth, and exhibited two simple but ingenious instruments for the purpose. A description of their operation would not be intelligible without diagrams.

'On Railway Chairs and compressed Wooden Fastenings,' by Mr. MAY.

Mr. J. NASMYTH described his improved Safety Valve, which appears to be characterized by remarkable simplicity of construction and efficacy of action, and likely to afford the utmost security which a safety valve can against explosion arising from undue pressure. He prefaced his description by alluding to the main source of derangement and uncertainty in the action of safety valves as hitherto constructed, namely, the employment of a conical bearing surface in the valve and its seat, which renders the use of a spindle and guide socket requisite so as to constrain the valve to rise from its seat in a direction absolutely vertical to the seat or bearing. This guide-spindle to be of any service has to fit the socket in which it works with considerable precision, in consequence of which any mud or incrustation which may chance to get upon the spindle of the valve tends to prevent its rise, and so far arrest its action. In order to remove this serious defect, a spherical bearing has been employed, which, as permitting the valve to fit its seat in any position, dispenses with the necessity of any guide or spindle. The grand feature in Mr. Nasmyth's improvement, however, consists in the peculiar mode by which a constant slight movement is given to the valve in its seat by employing the motion of the water during ebullition to so act upon the valve as to furnish the means of preventing it ever becoming set fast in its seat. This important object is attained in the most simple manner, by attaching to the bottom of the weight which hangs down inside the boiler (and which weight is attached to the valve by an inflexible rod), a sheet-iron appendage, which dipping a few inches into the water, transfers the constant swaying motion of the water to the valve in its seat, and so keeps it constantly free and ready to rise whenever the pressure attains the required force. Mr. Nasmyth exhibited several diagrams, drawn by the valve itself, which gave the most clear evidence of the existence and nature of the motion which the valve derives from the action of the water on the sheet-iron appendage before named. These diagrams were obtained by attaching a pencil to the top of the valve, and permitting it to draw upon a card such figures as resulted from the incessant slight motion of the

valve. These interesting proofs of the success of the action of the valve attracted much attention.

'On the Progress of the Wave System of Naval Construction,' by Mr. J. SCOTT RUSSELL.—"At the last meeting I laid before this Section an account of the successful introduction of the wave system into practice on several steam-vessels and sailing vessels at Rio Janeiro, by Mr. Dodgson, who had found the system in all respects successful, and that the vessels he had built on it had beaten their competitors on the old system. Since that time a treatise on Naval Architecture, published in America, has been transmitted to this country. It contains drawings of many of the most recent and celebrated vessels constructed in that country. The author of that treatise does not hesitate to avow frankly the general adoption of the principles of the wave system by the builders of the best and fastest vessels in America. He gives accurate drawings which are evidently made in accordance with it. He quotes experiments as high as twenty-four miles an hour, which speed has been attained by its use. He unhesitatingly declares his own implicit belief in the system and entire adoption of it. In our own country the most eminent builders of fast steam-vessels continue to adopt the most prominent characteristics of the wave system, viz. hollow water-lines for the bow —much fuller water-lines abaft than forward—the greatest breadth nearer the stern than the bow. I am not sure, however, how far the builders of these vessels would wish it to be understood that they do adopt the wave system; and I shall therefore confine my further observations to vessels which have been built under my own immediate care. During the last year an opportunity has presented itself of obtaining one of the most decided practical experiments on a larger scale, regarding the excellence of the new form for steam-vessels. A pair of marine engines of 220 horse-power had been working on board a wooden steam-vessel of 450 tons, being a proportion of one horse-power to two tons nearly. The beam of the vessel was twenty-four feet and her draft of water nine feet. This vessel was built on the old system, according to his own plan, by one of the most eminent builders of steam-vessels, and was placed on the line between London and Antwerp where it realized a maximum speed of ten miles an hour. These engines, with the same paddle-wheels, were then taken out of the vessel, and were placed in a new iron vessel built on the wave system by Messrs. Robinson and myself. This vessel was of larger beam and greater length of body than the former, being 570 tons, with 25 feet beam and 9 feet draft. The experiment has now been tried with the same old engines, but repaired and furnished with new boilers, capable of supplying the full amount of steam to the engines. The result has been conclusive. The vessel has not been made unusually sharp or fine, but on the contrary is a capacious sea-going vessel, with capacity for 150 tons of cargo more than the former vessel. The new form of vessel with the old engines has attained a maximum speed of 15 miles an hour, being a clear gain of speed of 5 miles an hour. It is important to observe that where speed is obtained by improved shape of vessel, it is obtained at the least possible first cost and greatest economy in daily use. I have next to report during the past year the first application of the wave system to the construction of war steamers. It had long been supposed that, owing to the fineness of water-lines of the bows of vessels built on the wave system, it would not be possible for them to carry the same amount of heavy ordnance calculated to fire in a line with the keel as in vessels of the ordinary construction. Even in these it is difficult to carry so large an armament in proportion to tonnage as is desirable. During last year, however, two war steamers have been constructed for a foreign government, of 500 tons and 160 horse-power, upon the wave system, by Messrs. Robinson & Russell. They have been fully armed, stored with provisions and fuel, and tried by a naval commission at sea, and have been accepted as having fulfilled the following conditions of their construction, namely, that they were to carry double the armament of any war steamer of the same tonnage and power and go two knots an hour faster than any vessel in Her Majesty's navy. Vessels, 165 feet long, 26 feet wide, 500 tons; engines, 48 inches diameter, 4 feet 6 inches stroke, 160 horse-power; armament, four 8-inch guns, 9 feet 6 inches long; ammunition, 100 rounds; fuel, 2,000 miles steaming; speed, 15 miles an hour light, 13 miles an hour loaded. I have last to report the trials, during the past winter, of a yacht, the Titania, built for Mr. R. Stephenson, the eminent engineer; who had confidence enough in the wave system to give it a fair trial on a sailing schooner, which he sent round during last winter by the Bay of Biscay to Alexandria, and in which he encountered severe hurricanes in the Mediterranean. The result of the experiments are, that the wave vessel has been found to be in every respect a good sea boat; and, contrary to the expectations of many who fancied that the fine bows of wave vessels were only good for fair weather sailing, it has turned out that while in light airs and smooth water vessels of a lighter build and larger sails may pass the Titania, yet that in any weather stronger than a light breeze she has beat every vessel she has encountered, including yachts of high reputation and larger tonnage. It thus appears that during 1850-51 very considerable progress has been made in the introduction of the wave principle into practical use."

FRIDAY.

The Section commenced business this morning, honoured by the presence of H.R.H. Prince Albert.

'On an Improved direct-action Steam-Fan for the more perfect ventilation of Coal Mines,' by Mr. NASMYTH.—The fan is of remarkable simplicity,—and excited lively interest, as offering certain and effectual means of striking at the root of those melancholy accidents which are of such frequent occurrence. An animated discussion followed.

'On the Application of Chilled Cast Iron to the Pivots of Astronomical Instruments,' by Mr. MAY.—"It has long been known that if a mould for casting iron in, be made of iron, or partly of iron and partly of sand, that portion of the casting which has run against the iron becomes what is technically termed "chilled," and is indicated by a white crystalline structure to a depth depending upon various conditions of temperature of the mould and the metal run into it, as well as of the chemical composition of the iron. The practical utility of chill casting depends on the fact that the part thus rendered crystalline is of extreme hardness, nearly equal to that of hardened steel, whilst the remainder of the casting may be as soft as iron cast in the ordinary sand moulds. The rationale of the effect thus produced is not well understood: cast iron is a compound of iron with variable proportions of carbon, and these proportions have not, as I believe, been yet reduced to anything like atomic order: some statements give as much as 15 per cent. of carbon in very soft pig iron, and such iron exhibits very little or no tendency to chilling. Practical experience is at present the only guide to the production of the desired effect; in some cases a very thin hard stratum is desired—in others a considerable depth, and this stratum may be varied from an almost imperceptible white line to half or three-quarters of an inch in depth: this latter being required in the larger rolls for making the finest thin sheet iron. Chemically speaking, cast iron and steel are of the same composition; viz. iron with a proportion of carbon: the proportion of the latter in cast iron being infinitely greater than in steel. Here I would point out a remarkable difference between chilled cast iron and steel. If the latter is heated red hot, and plunged into cold water, it becomes extremely hard; if, in this state, it be again heated, it resumes its original softness: but if chilled iron be so treated, it still retains its hardness. Whether this is caused by mere mechanical arrangement or by the chemical combination of the atoms—whether there be a metallic base of carbon in one case and not in the other, or by whatever these differences are caused, is far too little understood. The whole subject is one deserving the close attention of those whose pursuits enable them to study chemical analysis. Indeed, when we reflect on the fact, that without the peculiar properties of iron and carbon, civilization could not have been carried on, it does appear strange that the master minds of the age have not acquired more knowledge of the relative action and combination of these two substances. It would be foreign to our present object to enter upon the mode of manufacturing steel; but I may state the fact that it is extremely difficult to procure any masses that are of uniform density, whilst chill cast iron is easily produced with large homogeneous surfaces, and this brings me to the main subject proposed for your attention, viz., the application of it to the pivots of astronomical instruments. About four years since the Astronomer Royal applied to my partners and self respecting the construction of the mechanical parts of a new meridional instrument, the size of which so greatly exceeded anything of the same kind, that it became a serious question of what material the pivots should be made; it was requisite that it should be both hard to resist wear as much as possible, and homogeneous to insure that whatever wear took place should be uniform. The extensive use we make of chill cast iron suggested that if the pivots were so cast with the body of the axis in sand moulds and all run together, an instrument might be produced combining all the requisite qualifications. This has been successfully accomplished, and the great transit-circle or meridian instrument is now at work in the Royal Observatory to the satisfaction of the Astronomer Royal —on whose designs the whole has been constructed."

—A full-sized model of the telescope was in the room, by which it was shown that the pivots are 6 inches in diameter and the axis about 6 feet in length. The object-glass is 8 inches aperture, and about 11 feet focal length; and after a rigid examination of the form of the pivots, the Astronomer Royal has concluded that no correction for the shape of the pivots is required.

'On the Duplex Rudder and Screw Propeller,' by Capt. CARPENTER.—"The models represent views of a screw steamer constructed on what, after much consideration, I have determined to call the duplex principle, namely, with two rudders and two propellers for improved steering and propelling. Fig. 1. represents a stern view showing the position of the two rudders, which are removed out of the direct line of the midship keel, with an open space between them; and the two propellers are represented in their new position for propelling. To construct a vessel on this plan, the deadwood, sternpost, and rudder are removed from their former position, and the midship keel, which before was placed in a straight and horizontal line from stem to stern is now made to rise up on a graduated scale from the midship section to the water line of the midship part of the stern, where it terminates. The additional keels lie in a parallel line with the midship keel, but placed at a distance of two or more feet, according to the size of the vessel on either side of it, terminating near to the midship section in the fore part, and in a line with the former sternpost in the after part. A sternpost is placed at the end of the additional keels, and upon each of them hangs a rudder. Framework is carried down to these keels, in proper architectural lines for speed, at the same time connecting the frame together so that the strength of the vessel is increased in the after section, where it is most required in a screw steamer. Between this framework a channel is formed for the water to pass away freely in a direct line with the midship keel. A screw propeller works in an orifice in each framework on the common arrangement. One of the propellers is a little more aft than the other to allow full play to both, and yet economize space in the mid-channel. The propellers turn each of them towards the centre line of the vessel for propelling and the reverse way for backing. A steering-wheel is placed on the deck in the usual way, and connected with the tillers, which move the rudders together in parallel planes, or separately as may be required. The propellers can be lifted out of the water, for sailing, by means of a simple apparatus, which is placed on the deck for that purpose, or they may be feathered if preferred. This arrangement is found by experiments to have the best effect for steering and propelling, although this new form of vessel admits of many variations of adapting the ordinary propeller or other propellers to it; for example, the common paddle-wheel may be placed on the sides of the vessel in the usual way, or the common screw propeller may be placed between the framework, or sailing vessels may be constructed on this principle. The advantages of the duplex rudder and screw propeller may be con-

fered under three heads: first, as regards the two udders; second, the two propellers; and third, the onstruction of the vessel. To explain the advanages fully of having two rudders to a vessel instead f one, it will be necessary to refer to what has ctually taken place practically on this model, as I ave not been able to make any experiments on a arger scale up to this time. The duplex rudder has the power of turning the vessel about in the extremely short space of less than once and a half of her own length, with the helm put hard over on starting, and going full speed all the time till the circle has been completed. A single rudder of the same size placed in a line with the midship keel on the same model, and propelled in the usual way with a screw propeller in the dead wood, will not turn a vessel about in less than four and a half times her own length under similar circumstances. This fact shows the infinitely superior power and command there is over a vessel at all times with the duplex rudder in comparison with that in general use, and consequently that accidents by collision would be, in a great measure, prevented and the general safety of steam-vessels better secured by its adoption. Moreover, as either of the rudders on the duplex principle can be used to steer with singly, it is evident that in the event of damaging either one or the other that the vessel would be still under command, and therefore safe from immediate danger,—when a vessel fitted with a single rudder would be in a perilous position."

Prof. Piazzi Smyth read a description of an ingenious and simple method of applying the power of wind to a pump, for the purposes of irrigation,—as put into practice at the Cape of Good Hope.

MISCELLANEA

Geology of Asia Minor.—In the sketch of his exploration of Asia Minor, given at the late meeting of the British Association at Ipswich, M. Pierre Tchihatchef enumerated many phenomena and data hitherto unknown concerning the topography, meteorology, and botany of that region, particularly in reference to Mont Argæus and the tracts around it.—Among several geological results, the most important may be considered the clear distinction which that author has worked out in the last two years between the uppermost secondary or cretaceous limestones with their Inocerami and Hippurites, and the lower tertiary with their Nummulites and numerous Eocene fossils. Formerly, M. Tchihatchef considered these functions to be united in one natural group, because they chiefly consist of white limestones in conformable apposition; but he has now adopted the views established by the generalization of Sir R. I. Murchison in his work on the Alps and Apennines,* wherein this essential distinction was not only shown to prevail through Southern Europe, but was extended by him (through the labours of others) to distant parts of Asia. He, indeed, anticipated that it would be found to be the case in Asia Minor,—and the researches of M. Tchihatchef have confirmed his views.

Iodine.—An account has been published by M. Chatin, of a series of experiments on animal and vegetable substances, with a view to ascertain the amount of iodine that enters into their composition. All vegetables appear to contain more or less of this element, and it abounds in water-cresses. Wine is much more rich in iodine than water, milk richer in the element than wine, and asses' milk more rich in this respect than that of cows. Eggs contain a large portion of iodine. A hen's egg, weighing an ounce and a half, was found to contain as much iodine as a quart of milk from the cow.—*Galignani.*

To Correspondents.—P. J. C.—J. M.—J. A.—F. D. T.—J. E. F.—W.—C. B. A.—received.

Traces of Sir John Franklin.—We cannot publish Mr. Wyllie's letter, because we are extremely anxious to give no currency to rumours calculated to direct the minds of those most anxious on this painful subject into channels which we believe to be barren. Our own opinion remains unaltered as to the unimportance of Millar's statement,—and we cannot hear of any Arctic officer placing the slightest faith in it.—We have positive grounds for believing that Sir John Franklin's Expedition sailed through Barrow Straits,—and reached Cape Riley; and in all probability the present year will bring conclusive tidings of his fate from that direction.

* See 'Journal of the Geological Society of London, 1848.' Vol. V. p. 151.

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